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# AVIATION TURKEY

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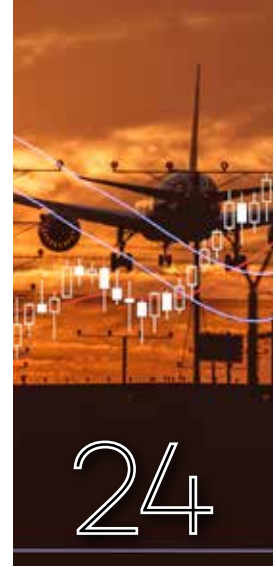
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## Will Aviation the Sector Take-off Again in 2021?

Aviation executives and officials have still been struggling with the impact of COVID-19 with the aviation industry having been the hardest hit. There is optimism over a vaccine, but mass inoculation is still a long way off. Border restrictions and quarantine measures are a big challenge especially for European airlines affected even worse than most other parts of the world. The IATA's latest economic forecast reveals that in 2021 Europe is expected to be the worst-hit global region in terms of airline losses (-\$11.9 billion) and EBIT margin (-9.5%). Across Europe as a whole, more than seven million jobs have been lost or are at imminent risk due to the COVID-19 shutdown. Since 2019, total connectivity has declined by 68% in Frankfurt, 67% in London, 67% in Paris, 66% in Istanbul, 64% in Moscow, and 53% in Amsterdam.

*So how does the aviation industry survive in this period?*

Lately, the IATA called upon governments to add market stimulation measures to the support they are giving to keep aviation financially viable. Such measures would encourage travel

while systematic testing protocols enable a safe re-opening of borders. The IATA identified five proven ways that governments can help stimulate the air travel market while avoiding adding more debt to already highly leveraged airline balance sheets:

**Temporary waivers or suspensions of government charges, taxes and fees** to airlines and passengers will reduce flight costs and lower travel costs for passengers

**Route subsidies** for flights to local/regional destinations to support connectivity for rural communities and business

Financial incentives in the form of rewards for operating flights, or seats flown, which can support airlines while load factors or yields are too low

**Advance ticket purchases** that governments can use for future trips or distribute to the traveling public in the form of vouchers to support travel and tourism

**Passenger travel subsidies** in the form of vouchers for passengers or as a percentage cash-back on overall travel costs

Moreover, The Worldwide Airport Slot Board

(WASB), comprising Airports Council International (ACI World), the International Air Transport Association (IATA), and the Worldwide Airport Coordinators Group (WWACG) released a joint recommendation for airport slot use relief for the northern summer 2021 season. The organizations called on regulators worldwide to temporarily adopt more flexible slot rules in line with the recommendation as quickly as possible in order to preserve essential air transport connectivity.

In his last briefing to the media Alexandre de Juniac, President of the IATA, stated that the aviation sector cannot afford to wait for vaccines to cover the population before reviving international travel, so he underlined four key areas that are at the top of the IATA agenda for re-connecting the world from an operational perspective:

**1-Following global standards to keep travel safe.** One of the greatest achievements in this crisis was the establishment of the guidelines for measures to keep flying safe—the ICAO CART guidelines. This was done in

record time. And the implementation has been good, but not universal. Therefore, the first priority is to ensure that these measures are in place everywhere.

**2-Clearing the way for the effective distribution of vaccines.** It is critical that aviation workers should be on the priority list after health care workers and vulnerable populations.





3-Safely re-opening borders with systematic COVID-19 testing. Critically, this must be without quarantine measures.

4-Having efficient means for managing verified health information. Testing or vaccination data will be critical to giving governments the confidence to re-open borders. That's a huge task. This means:

- Keeping track of entry requirements and accredited testing laboratories
- Having secure systems to securely manage and verify test results or vaccine status
- Linking test results, individual identity and travel processes so that we have a solution that is manageable for airlines/authorities and convenient for travelers

The path ahead will continue to be a challenging one. Assumptions point toward the fact that a slow recovery will start, and that airlines are still expected to bleed cash at least until the fourth quarter of 2021. Undoubtedly this situation has reminded us of the physiological interconnectivity that weaves humanity together, not just the

internet of things. Nations must now come together and orchestrate the monumental task of systematically managing vaccine strategies in the coming days, across the globe.

Enjoy the issue...

**Ayşe Akalın**  
Editor in Chief

A handwritten signature in black ink, appearing to read 'Ayşe Akalın'.

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## Turkey & Russia

### Close Cooperation Indicates

### Big Opportunities for All Parties in Aviation



by Can Erel  
Aeronautical Engineer

In this issue, we are proud to share a part of the “CAN’CA Interview” with H.E. Alexander Neradko, the First Deputy Minister of Transport of the Russian Federation & The Director of the Federal Air Transport Agency. In

this interview by Can Erel, the Chief Advisor to the Aviation Turkey Editorial Board, Mr. Neradko discusses his career, aviation and bilateral relations between Turkey and the Russian Federation.



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I have always thought that it was more than an interesting milestone in my career to know such a great person like Alexander Neradko; the time passed proved that I am right...

Completing the process of mutual audits began in 2017 has led to Turkey and the Russian Federation coming to the conclusion that their airworthiness and flight safety

assessment systems are similar and in line with ICAO standards. Then, a Working Arrangement between the DGCA of Turkey & FATA of the Russian Federation (Russia) was signed between us as the representatives of the parties on February 7, 2018.

The agreement paved the way to simplified procedures for the mutual recognition of aircraft

certification documents. Today, Turkey and Russia started introducing a “favorable environment” for bilateral aircraft exports and imports, with documents issued by one of the two countries to be recognized by the other.

Since my leaving the Turkish civil aviation authority, we have been keeping in touch with each other and I have

always felt his great friendship in my advisory business in aviation. I am very happy that Alexander Neradko has allowed me to have such a meaningful conversation in such an important time for aviation while he is the Acting Minister of Transport of Russia and I am pleased to include this interview as part of the content of Aviation Turkey magazine...

## INTERVIEW

**✈️ Can Erel: Who is Alexander Neradko and where did the interest in aviation first come from?**

**Alexander Neradko:** My initial interest in aviation appeared in the early school time when I read many exciting books about aviation, pilots, mechanics and their work, airplanes and helicopters.

In 1978 I entered the Moscow Technical University of Civil Aviation, and graduated in 1984 with a degree in "Operation of Aircraft and Engines". Since that time, my professional activity has been inseparably connected with civil aviation organizations and the civil aviation authority of Russia.

**✈️ Can Erel: What about Mr. Neradko as a leader of Russian civil aviation appointed in 2000?**

**Alexander Neradko:** No less, 20 years ago, in August 2000, I was appointed to the position of the First Deputy Minister of Transport – Director General of the State Civil Aviation Authority. Before this my work was connected with flight safety oversight, investigation of aviation accidents and incidents – perhaps this brought up my stress tolerance and the habit of paying attention to every small detail, with nothing overlooked or missed.



Alexander Neradko and Can Erel

I can definitely state that since my childhood sport helps me – it motivates, builds character and "will to win", develops strategic and tactical thinking, patience, respect for the competitors and teammates, and develops hardness and "sports anger", which are always important to resist any challenges.

Several times, I became the champion and medalist of the Soviet Union Championships in the high jump and in 1980 achieved a record that only the best athletes of the USSR could achieve at that time - 2.25 meters.

Civil aviation is absolutely a "team game", it is impossible to manage this

complex industry alone. People have always been and are the main force of Russian aviation. I warmly remember my mentors and colleagues whose knowledge, wisdom and experience helped me to grow up as a professional and a leader.

I am convinced that it is vitally important to maintain a continuous dialogue with the aviation community. For example, since 2001 we established the Club of top-managerial level civil aviation veterans named "Experience" in order to use their professional potential and skills. Consulting assistance in the current activity of the Federal Air Transport

Agency (FATA) is provided by the Advisory Council consisting of highly qualified civil aviation professionals, by the Public Council as a tool of open public policy to monitor and evaluate the quality of FATA services by the society and air passengers, by the Pilot-in-Command Club, associations of air transport operators, airports, passengers, etc. Parliamentarians and heads of the Russian regions provide great assistance in terms of air legislation. Everyone makes their own contributions and helps to see the issue from different points of view and to make the right, sometimes not easy, decision.

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I am proud to defend the interests of national civil aviation at the level of the Aviation Collegium of the Government of the Russian Federation, as its Deputy Chairman.

**✈️ Can Erel: Your career spans over 35 years in the aviation industry; what is your evaluation of Russian Federation (Russia) civil aviation in terms of the point that it has reached today? Give us a brief description of Russia civil aviation with the facts and figures...**

**Alexander Neradko:** On February 9, 2023 Russian civil aviation will celebrate its 100th anniversary. Russia is one of the few countries in the world having the status of "aviation power", with hi-

tech technologies and competencies in design and manufacture of the entire list of aeronautical products.

The Russian Federation provides air navigation services in the airspace over 26 mln km<sup>2</sup> with an extensive network of 1,072 routes with a total length of 883,181 km, including 627 routes for international flights. In 2019 more than 1.8 million flights were served in the Russian Federation's airspace.

In order to ensure flight safety, meet the interests of users and increase the transit potential of Russian airspace, a large-scale air navigation reform was launched in 2005, which led to the creation of a unified (without dividing into military and

civil sectors) air traffic management system. We continue improvement of the airspace structure, optimization of its management system and implementation of new technologies, perspective tools and systems for air services, surveillance, navigation and communication, and equipping of civil aerodromes with modern instrumental systems for landing. I use this opportunity to invite Aviation Turkey Magazine to visit Russia to make a separate report on this topic.

After the disintegration of the Soviet Union, the period of the 1990s and early 2000s, when I was appointed to lead the industry, was a difficult time for

national civil aviation due to a total deficit of funding, shutdown of new aircraft and engines manufacturing, a huge number of "shell" airlines with a fleet of 1-2 aircraft, a decline in traffic, implementation of Chapter 2 noise restrictions in 2002 in a number of popular touristic countries that actually blocked operations of the basic "labor force"- airplanes Tu-134, Il-86 and cargo Il-76.

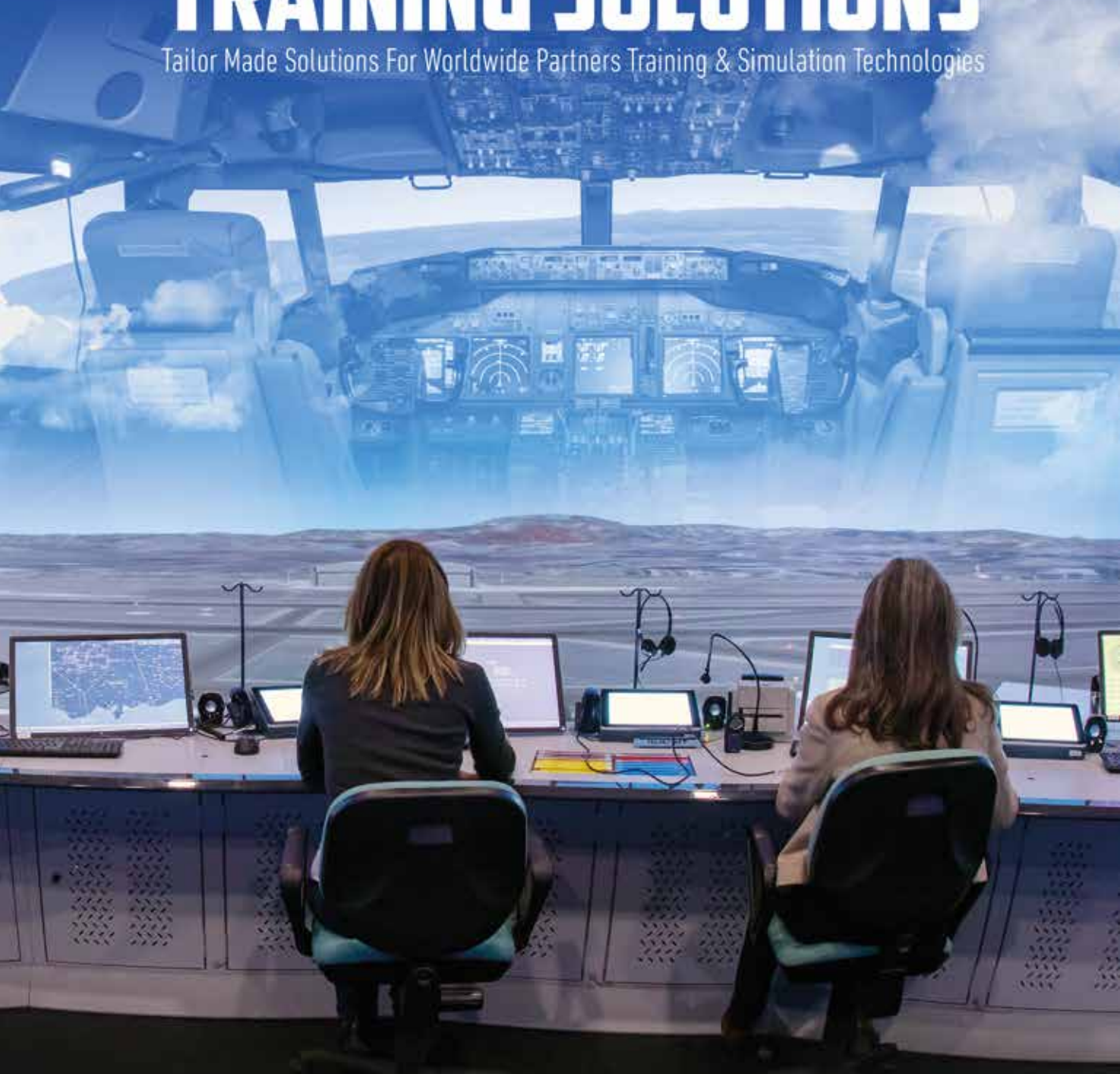
Since that period, a huge amount of work was done to raise the industry- in the pre-COVID-19 period it was characterized as continuously growing according to the main indicators. Russians began flying more frequently not only on international but also on domestic flights.



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The amount of Russian airlines traffic in 2019 exceeded 128 mln passengers (+10.3% to the previous year), including more than 55 mln passengers on international routes (+16.3%), and about 73 mln passengers on domestic routes (+ 6%). The top-5 airlines include Aeroflot, S7, Russia, Pobeda, and Ural airlines with a market share of about 65%. Russian airlines operated scheduled and charter flights to the destinations in 75 foreign countries, and 155 foreign airlines from 72 countries operated passenger flights to Russia.

In 2019 our airports served more than 221 mln passengers of Russian and foreign airlines and more than 968 thousand tons of cargo and mail.

Currently there are 107 commercial airlines, 220

operators of aerial work and 69 general aviation operators registered in Russia.

The fleet of Russian air carriers consists of 1,120 helicopters, 873 airplanes and 277 regional airplanes of various Russian - and foreign-made types. In total 8,830 piloted aircraft are registered in Russia. According to our forecast Russian airlines will demand 567 transport category aircraft, 405 helicopters and 259 regional airplanes by 2030. We are optimistic for the promising MC-21 aircraft currently certifying and

other new Russian-made aeronautical products, while pursuing a policy of import substitution.

There are 241 civil aviation airports, including 79 international airports, 45 of ICAO Category 1, 6 are ICAO Category 2, 5 are ICAO Category 3 and 6 heliports and 2,112 landing pads.

We often say in our industry that “3 km of road will not lead you far, but 3 km of runway will open the whole world to you”. Taking into

account the geography and climatic conditions here in Russia, its huge territory and existence of difficult-to-reach by land places where people live and objects of various sectors of the economy, which can only be reached by air, civil aviation serves the task of increasing public mobility, quality and level of life and ensuring affordable prices of air carriages. Our target is to augment the situation entirely, as now communication between neighboring points in the Far East or North of Russia is only possible with air transfer via the capital Moscow situated thousands of kilometers away from these points.

In order to achieve this target, we should construct from zero or modernize the ground airport infrastructure built in USSR times, develop a socially important regional air network and have required air fleet of various seat capacities. Several federal government-level programs were launched recently to subsidize regional and local operations, lease aircraft for these routes






by airlines, compensate for lost revenue from airports and ground handling organizations, and hold the growth of airport fees and charges rates. By 2024, 66 airports are planned to be reconstructed (including 25 large and economically significant for the regions and 41 located in remote Far East and Arctic areas.)

The task is ambitious, plus it has specifics related to the difficult logistics of delivery of building materials to such remote sites, deficit of contractors qualified in airport building and a very limited calendar period for on-site construction activities due to the harsh climate, but the resolution is directly linked with the increase of the economic and social territorial connectivity level in the country.

I try to visit personally even the most remote points and construction sites in order to monitor the implementation of the program.

 **Can Erel: Can you share your way of success and major challenges in civil aviation?**

**Alexander Neradko:** Undoubtedly, a very important responsibility for me requiring concentration and preparation is air transportation support of events at the national



and international level like political and economic forums and election campaigns, sport competitions and cultural festivals. Transportation must be organized impeccably, safely and comfortably. Such events include, for example, the annual economic forums in Sochi, Saint Petersburg, Krasnoyarsk and Vladivostok – unfortunately, no events were held this year due to the COVID-19 pandemic.

The quite new event for FATA in 2019 was the organization of aviation support for participants and guests of the Russia–Africa Forum.

In 2020 Russia chairs the Shanghai Cooperation Organization (SCO) and the BRICS (Brazil, Russia, India, China and South Africa) groups, and despite limited air connections, this means a great responsibility for the Russian aviation industry.

Aviation services provided for the 2014 Sochi Olympics were at the highest level; the 2018 FIFA World Cup held in 11 Russian cities involving 13 airports; stages of the Red Bull Air Race world championship in Kazan, Formula 1 races in Sochi; the summer and winter world Universiade games among students in Kazan and Krasnoyarsk, the WorldSkills championship, and many others.

The work of Russian aviators, airports, air navigation and ground services providers were evaluated by the country's leadership as flawless and we are very proud of this.

Readers of your magazine will find it interesting that the Russian civil aviation annually organizes transportation of Russian pilgrims to the Hajj. In 2019 more than 26,500 pilgrims were transported.

Over the past few years, we have also had to face


economic challenges – the termination of operations of the major Russian airlines Transaero in the fall of 2015 and VIM-Avia 2 years later. Along with necessity to urgently find and involve other carriers to return from abroad a large number of passengers in the middle of the high tourist season and to organize air ticket refunds, the situation had a great social impact – a large number of qualified aviation personnel remain jobless, with arrears in salaries and picketing, it was necessary to employ them fast, to close debts accumulated by the mentioned 2 airlines toward airports, fuel and air navigation services. I remember with gratitude the support of the Directorate General of Civil Aviation, (DGCA) of Turkey helping in these not easy days to organize the return of Russian tourists-clients of both airlines from Turkish resorts.

## INTERVIEW

Absolutely, the most difficult challenges, both emotionally and professionally, are air accidents with a large number of victims. I work at the scene from the very first minutes, manage search and rescue operations, interact with colleagues, communicate with mass media, and with relatives of victims. The № 1 task is to establish the true reasons for the accident and take measures to avoid repetition once and for all. Aspects of flight safety and prevention are the highest priorities for the Federal Air Transport Agency.

Due to the threats coming from international terrorism to global civil aviation, very serious attention is being paid to security measures and the protection of the air transport infrastructure and air fleet from acts of unlawful interference.

Among the challenges that we, as well as the aviation administrations of other countries, determine and try to decide, I can also mention the necessity to avoid a deficit of qualified aviation personnel versus a growing amount of air carriages. It is necessary to strengthen and develop the personnel potential of the industry.

 **Can Erel: My next question is exactly about this. As we all know that the ICAO launched the Next Generation of Aviation Professionals (NGAP) initiative to ensure that enough qualified and competent**

**aviation professionals are available to operate, manage and maintain the future international air transport system. What can you say about the Russian civil aviation education structure and features in terms of supporting this initiative?**

**Alexander Neradko:** Qualification, competence and professional responsibility are the core principles of training of civil aviation personnel. Safety and reliability of aircraft, maintenance of flight and technical operation of aircraft on the required level – all of these depend on the appropriate level of training. Therefore, the issues of personnel training, ensuring the full staffing needs of the aviation enterprises, permanent professional recurrent training of specialists and heads of civil aviation enterprises have great importance not only for the industry, but for the country as whole.

81 aviation-training centers and 60 their branches in 30 regions of the Russian Federation are carrying out aviation personnel training activities.

Jointly with airlines, we conduct an annual analysis of the demand for commercial pilots. This is about 850 aircraft pilots and 90 helicopter pilots for the period up to 2024.

The FATA is the founder of 3 state universities of


civil aviation located in Moscow, Saint Petersburg and Ulyanovsk. Each of them also includes educational organizations of secondary education (colleges) as branches. Education is carried out at 32 professions and specializations, 23 of them have an industry-oriented focus.

All educational organizations are equipped with a modern base to train specialists for the operation of foreign aircraft and equipment, introduce innovative technologies in accordance with international requirements, actively develop international cooperation in educational and scientific fields, educate foreign citizens, participate in exchange programs for students, teaching staff, internships with leading educational and scientific centers abroad, involvement in international educational projects, congresses, conferences and symposiums, and carry out practical research.

An attractive feature of the Russian aviation universities for foreigners is the ability of “through” educational trajectory: pre-university, bachelor programs, magistracy, post-graduate courses on a wide range of professions demanded in civil aviation. The intensive study of the Russian language is conducted for foreign citizens as well.



I would be happy with the strengthening of close academic and scientific relations in the field of education and training of civil aviation professionals with our Turkish colleagues.

 **Can Erel: How do you evaluate Russia and ICAO relations?**

**...basic approaches, any distinctive strategy of Russia within the ICAO**

**Alexander Neradko:** The overall organization of Russia's representation within the ICAO is my direct job responsibility. The Russian Federation always actively participates in ICAO activities, supporting its strategic goals and conducting joint efforts with the world aviation community to create an integrated and safe global air transport system. Much attention is paid to the formation of the Russian side's approaches and policy related to all topics of the ICAO agenda; for this purpose, the Inter-ministerial Commission on ICAO Affairs was established.

Surely, on a number of issues discussed at the ICAO platform, Russia openly criticizes and defends its opinion. As they say, "truth is born in a dispute".

For example, we consider unacceptable attempts are being made to impose an additional and unjustified financial burden on the civil aviation sector in the form of global market-based measures, the "carbon compensation and reduction system for international aviation (CORSA)". It is obvious that withdrawal of significant financial resources from the industry will have a negative impact on the speed of development of civil aviation, especially in developing countries.

We also defend the necessity to keep the principle of multilingualism in the ICAO. It is unacceptable when international ICAO events that require involvement and opinions of many countries are not supported with language services.

Generally, throughout membership in the ICAO our country is consistently committed to policy aimed at following all provisions of the Chicago Convention, implementation of standards and recommended practices into national air legislation and its harmonization.

In 2017 the Russian Federation joined the Montreal Convention of 1999.

In 2018 an Agreement was signed on establishment and operation of the International Bureau for the investigation of aviation accidents and serious incidents, and we expect that other States in our region will join this Agreement as well.

Earlier, in 2015, in accordance with ICAO recommendations, the Government of the Russian Federation made a decision on returning functions of certification of civil aeronautical products back to the national level as it was until 1991, from the Interstate Aviation Committee to the Federal Air Transport Agency of Russia. It was a long-overdue step to strengthen the national aviation industry, to raise the export potential of Russia as a country that designs and manufactures in respect to a wide list of aeronautical products and is directly responsible for their safe operation in civil aviation. The leading aviation powers, as well as the states importing Russian-made civil aeronautical products and the international aviation community fully supported this reform. Now we are in process of negotiating and

signing arrangements with many of them in the field of certification and airworthiness, as prescribed by the ICAO.

In 2019 Russia successfully passed the ICAO Universal Security Audit Program with 95% achievement, demonstrating a high level of compliance with ICAO standards in the field of aviation security and protection of air transport infrastructure and aircraft from acts of unlawful interference.

Undoubtedly the key priority for the Russian Federation is the provision of flight safety in accordance with the ICAO

"safety first" standards. We have implemented the system for distribution of information about identified risk factors; all concerned parties get free access to it. The database of investigation materials related to aviation accidents, incidents and operational occurrences is one of the most popular information resources, bringing together more than 1,400 users representing 350 civil aviation industry organizations. Important attention is paid to aspects of runway safety, seasonal and climatic specificity of airline and airport operations, ornithology, human factors and crew



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resource management; technical flight conferences on particular aircraft types are held on a regular basis with the participation of air carriers, design and manufacture companies.

In December 2019, the entire international aviation community celebrated the 75th anniversary of the signing of the Convention on international civil aviation in 1944. In honor of this event on December 06, 2019 we launched the ICAO flag from the Baikonur Cosmodrome to the International Space Station – I guess it never flew so high before! On December 07, 2019, the international space crew addressed a video speech to mark this significant date.

On February 06, 2020, the flag was returned to Earth and was handed over by me to the ICAO headquarters as a gift to the Russian Federation in memory of this unique event.

Currently, of course, we are carefully monitoring the ICAO's initiatives on COVID-19

**✈️ Can Erel: Almost all countries have been forced to adopt strict measures to fight coronavirus, which first appeared in China in late 2019 and quickly spread to other countries, resulting in a death toll of over 1.5million so far. Can you tell us the story of how COVID-19 has impacted aviation in**

**Russia, how could your government and industry fight the COVID-19 pandemic?**

**Alexander Neradko:** The amount of traffic of the top-10 Russian airlines on international air routes in April-August 2020 decreased by more than 99% in comparison with the same period of 2019. In total 52.6 mln passengers were carried in 9 months of 2020, the amount decreased by 47 % in comparison with the same period of last year.

To compare, taking into account the historical background, in 1990 the amount of domestic air transportation in the whole USSR was about 85.5 mln

passengers. The lowest level occurred in 1999. At that time, traffic was 22 mln passengers, decreasing almost 4 times. The amount of traffic recovered only by 2014 (84.6 mln passengers). Thus, the industry took about 15 years to recover.

In the current conditions, the drop was almost 100%. In addition to the crisis phenomena, the social stress has a significant impact today as well.

In May 2020 we implemented "Guidelines for a step-by-step exit from the anti-epidemic restricting regime imposed against the spread of a new coronavirus infection, while restoring air passenger transportation in civil aviation". Monitoring of the following of these Guidelines by airlines and airports is performed permanently. Compliance with these requirements is also required for foreign airlines to resume their international flights to destinations in the Russian Federation.

In general, the aviation industry of the Russian Federation is fully ready to restart on a reciprocal basis for air flights to/from the foreign countries, where the pandemic situation is demonstrating positive dynamics.

As for the priority measures of state support for civil aviation, as one of the most affected by the pandemic, they were

resulted in adoption of several important legal acts concerning the introduction of a moratorium on filing bankruptcy applications, granting a grace period for the organizations in order to pay taxes, insurance premiums and leasing payments for aircraft. Permits were extended, subsidies were allocated to airlines and airports from the reserved fund of the Government of the Russian Federation for the partial compensation of the costs due to reduced revenues because of falling passenger air traffic; Aeroflot as well as leading air carriers in other countries received targeted financial support. Special permissions were granted to several passenger airlines to transport socially important medicine and sanitary goods and equipment in the cabin of passenger aircraft – which allowed for the economic support of their operational activity during the challenging period for the industry.

**✈ Can Erel: What about measures taken against COVID-19 in the air transport chain, from the gate at a departure airport to the gate at an arrival airport?**

**Alexander Neradko:**Such a set of measures routine for all of us in the recent months relates to the use

of personal protective equipment (masks and gloves), disinfection, thermometry at all stages of the passenger's journey, maintaining social distance and providing information about contacts.

Information about COVID-19 prevention is announced in the airports and on board, the number of accompanying persons in the terminals is minimized and control over air conditioning systems is strengthened. Passengers are admitted on board only in protective masks and gloves, that cannot be removed during the entire flight, except taking food and drinks. The "fasten seat belts" mode is activated permanently in flight, minimizing moving of passengers on board.

The conditions for entry of foreign citizens to Russia are the mandatory existence of medical insurance and negative results of a PCR test for COVID-19. It is also mandatory to submit contact information that will allow quick identification of the passenger if one of the passengers on their flight was diagnosed with coronavirus.

**✈ Can Erel: Now, let us move to air transport between our countries... In the middle of the summer 2020, Turkey and Russia agreed to**

**resume flights after a 4-month hiatus due to the COVID-19 pandemic. Can you share your expectations regarding passenger traffic and freight traffic between Turkey and Russia?**

**Alexander Neradko:** In recent years Turkey has been a leader in the top-10 international destinations popular for tourism for Russian citizens. Of course, they are looking forward to the soonest normalization of the situation.

Since the 1st of August this year, Russia restarted scheduled international flights in compliance with the required sanitary

protection measures to a number of countries including Turkey. On the first step flights started from Moscow, Saint Petersburg and Rostov-on-Don to Istanbul. Scheduled and charter flights of Russian and Turkish air carriers to/from Dalaman, Bodrum and Antalya resumed August 10, 2020 and are in high demand.

No doubt, it will take time to restore the previous traffic volumes, and it is difficult to make any forecasts, even initial ones, but both Russian and Turkish aviators are ready to work together on this issue.



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Be-200 Amphibious Aircraft

✈️ **Can Erel:** What can be shared about the current status of programs and business partnerships in regard to fixed and rotary winged aircraft for aerial firefighting that I took part in for both initiatives?

**Alexander Neradko:** Russian aircraft and helicopters have unique flight characteristics and reliability, well recommended for all climatic and geographical conditions from the Far North to the southern latitudes and are offered at very competitive prices compared to western products.

Unfortunately, sometimes foreign air regulators and operators are not well informed about the potential of Russian-made aeronautical products, but we are working on it – the task of popularizing of Russian aeronautical products in foreign markets are actively being solved in various ways, including participation in the international exhibitions and air shows, such as MAKS, Le Bourget, Eurasia-2018 in Antalya, and demo tours.

Every year, wildfires cause huge economic and environmental damage and lead to victims all

over the world. One of the most effective means of combating them is through aviation.

The Russian Be-200 amphibious aircraft performs brilliantly in this regard. The aircraft is really promising, multi-purpose and unique, certified for civil aviation. I would say that it is an aircraft of "three elemental forces – air, fire and water", created to save people, wildlife, and infrastructure. This is the only amphibious jet aircraft in the world, which gives it undeniable advantages in speed while extinguishing fires. It can take 12 tons of water on

board. For one refueling, the aircraft is able to drop up to 270 tons of water on the fire. In addition, the Be-200 can be quickly converted to carry 43 passengers on medium-length routes basing both on aerodromes and on water surface, and the medicine module can also be placed on board.

It is great that since June 2020 by the decision of the Ministry of Agriculture and Forestry of the Republic of Turkey, several Be-200 amphibious aircraft with Russian crews carried on fire duty near Antalya, Izmir and Bodrum. Our Turkish partners can



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wholly evaluate the potential of this highly efficient aircraft – in fact, like other countries, whose calls to help fight annual wildfires are always promptly responded to by Russia.

Besides, in 2019 a party of Ka-32A11VS helicopters designed not only for firefighting, but also for search and rescue operations, high-rise building, ferrying cargo inside cabin and on the external load sling, logging, medical evacuation, patrolling, and effectively operated in dense urban districts, remote mountain and forested areas, landing on deck of

© Russian Helicopters

small vessels, oil platform pads were delivered to Turkey. Deliveries of Ka-32A11VS became possible within the framework of the Working Arrangement in the field of airworthiness signed between the Federal Air Transport Agency and the General Directorate of Civil Aviation of Turkey in February 2018.

**Can Erel: Do you see any joint aviation programs**

**between our countries such as Indigenous regional and/or other type aircraft design & manufacturing, Fixed and/or rotary winged aircraft modification, New type airport, and Smart cargo hub?**

**Alexander Neradko:** The issue of the potential of Russian - Turkish cooperation in the aircraft design and manufacture industry is rather related to the competence of

the Ministry of Industry and Trade of the Russian Federation, but as I am aware, Turkish aerospace industries specialize in aeronautical production and produce various types of components and also have established serious economic and trade relations, and this may definitely be of interest to Russian corporations involved in the design and manufacture of aircraft and helicopters.

Ka-32A11VS



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As for airports, Turkish companies have proven themselves well and regularly win tenders for the construction of airport terminals in Russia.

For example, a Turkish construction consortium is constructing passenger terminal at Kemerovo airport. Earlier the same contractor built the new "Platov" airport terminal in Rostov-on-Don, which successfully entered into operation in December 2017, and the new passenger domestic terminal at Khabarovsk Airport, which entered in operation in 2019.

Turkish companies also won tenders for the construction of a cargo terminal at Kazan airport and a new terminal of Novosibirsk airport. Currently, the Turkish side is interested in projects for the construction of new terminals for Voronezh and Mirny airports. We have no doubts about the quality and terms of work performed by the Turkish companies – all newly constructed terminals and their technological equipment meet the most modern standards, requirements for providing comfort for passengers with limited mobility. Given the number of airports we plan to build and reconstruct, I assume that there will be enough work here for both our construction teams and Turkish construction teams.

 **Can Erel: How would you evaluate relations between the aviation authorities of Turkey and Russia? Can we go further/deeper into this topic, how can we explore this?**

**Alexander Neradko:** In 1997 a "Long-term Program for the development of trade, economic, industrial, scientific and technical cooperation" was signed between our countries, also there are several intergovernmental Medium-term programs for trade, economic, scientific, technical, transport and cultural cooperation signed for its implementation. Since 2010 the new bilateral intergovernmental Air Services Agreement has been working effectively.

I can say with absolute confidence that mutually beneficial cooperation in the field of air transport will continue to develop continuously in the same partnership and good-neighborly spirit that exists between the civil aviation administrations of Russia and Turkey.

Areas for deepening our cooperation and sharing best practices include air carriages, aviation education and pilot training, flight safety, aviation security, airworthiness, air navigation and airport infrastructure. Cooperation in the field of emergency medical care with the use of air ambulances may

be promising – Russia launched a program in 2018 to develop this socially important area, which will cover the whole territory of the country by 2021. For these tasks the Russian aviation industry offers effective solutions for aircraft and helicopters in the form of special on-board emergency medical modules, neonatal modules for transporting newborns and, important in the pandemic situation, boxes for infectious patients. I am convinced that they could be successfully utilized by the healthcare system of the Republic of Turkey.

 **Can Erel: Is there anything you would like to add?**

**Alexander Neradko:** I would like to thank you for your interesting questions, and also, I wish for civil aviation in our countries to survive in such a challenging time and to not only recover, but also to improve the results and amount of passenger traffic and cargo turnover as quickly as possible.

In the future I would like to invite all of your readers to fly to Russia, it is beautiful with its nature, cuisine, and culture. And most importantly, take care of yourself and your beloved ones and be healthy!

 **Can Erel: Thank you** 



#siziönemsiyoruz

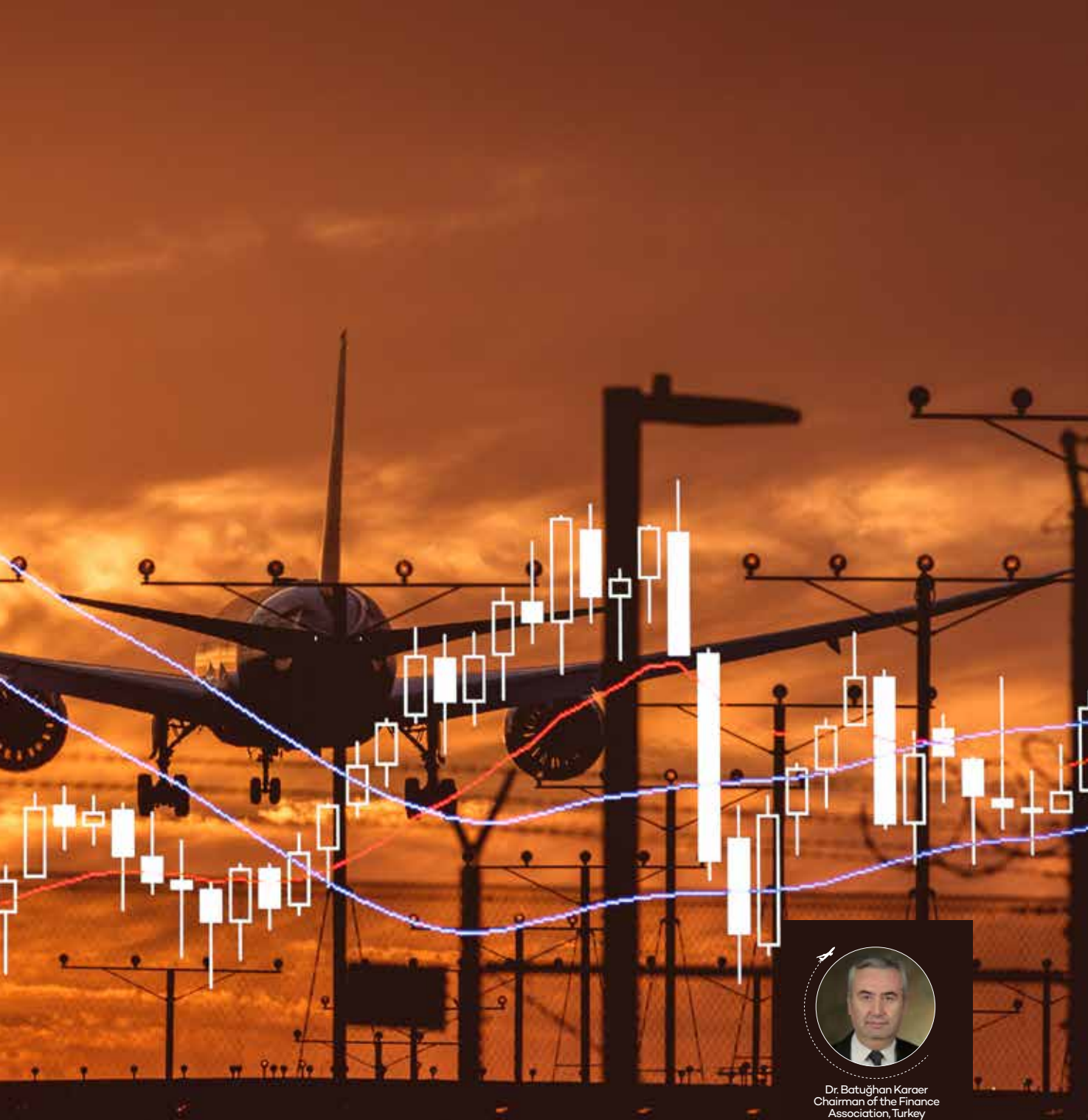


Yaşadığımız bu yeni dönemde havalimanımızdan başlayacak tüm seyahatlerinizi daha sağlıklı yapmanız için, süreçlerimizi daha güvenli hale getirdik.

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# Will the Effects of COVID-19 Cause Irreversible Damage to the Aviation Industry?



  
Dr. Batughan Karaer  
Chairman of the Finance  
Association, Turkey

The pandemic-induced uncertainty makes predicting almost impossible. News about the vaccines developed against the coronavirus in the last quarter of the year raises hope that there's light at the end of the tunnel. Health experts and officials say the problem will be almost over by the winter next year. But even at this point, the uncertainty and unpredictability in the tourism and aviation industry still persists.

After the turbulent summer season, it is now widely believed that aviation may not return to normal for many years. Even if there is a glimmer of hope, airlines find it difficult to set their strategies because the fog of uncertainty still surrounds us. How the industry will develop in a post-pandemic world is still one of the big unknowns.

## FINANCIAL REVIEW

SALES In Millions of USD Table-1	Sep-18	Sep-19	Sep-20	Değ.18/20	Değ.19/20
EasyJet plc	2.421	2.485	405	-83%	-84%
Gol Linhas Aéreas Int. S.A.	716	893	174	-76%	-81%
Singapore Airlines Limited	2.971	3.055	599	-80%	-80%
United Airlines Holdings, Inc.	11.003	11.380	2.489	-77%	-78%
Delta Air Lines, Inc.	11.953	12.560	3.062	-74%	-76%
American Airlines Group Inc.	11.559	11.911	3.173	-73%	-73%
Deutsche Lufthansa AG	11.561	11.018	3.119	-73%	-72%
Pegasus Airlines	603	726	206	-66%	-72%
Southwest Airlines Co.	5.575	5.639	1.793	-68%	-68%
Air France-KLM SA	8.759	8.294	2.960	-66%	-64%
Ryanair Holdings plc	3.203	3.355	1.232	-62%	-63%
Turkish Airlines	3.954	3.990	1.526	-61%	-62%
China Eastern Airlines Cor. Ltd.	4.871	4.844	2.529	-48%	-48%
Air China Limited	5.625	5.284	2.770	-51%	-48%
China Southern Airlines Co.Ltd.	6.018	6.119	3.886	-35%	-36%
<b>TOTAL</b>	<b>90.793</b>	<b>91.553</b>	<b>29.922</b>	<b>-67%</b>	<b>-67%</b>

As I mentioned in my previous articles, airline companies are the common component of the industry. Therefore, like many others, I believe it is necessary to focus on airlines in order to see the impact of the pandemic on the industry. For this reason, I tried to examine the figures of some

airlines as of the end of June in order to understand their financial situation during the pandemic.

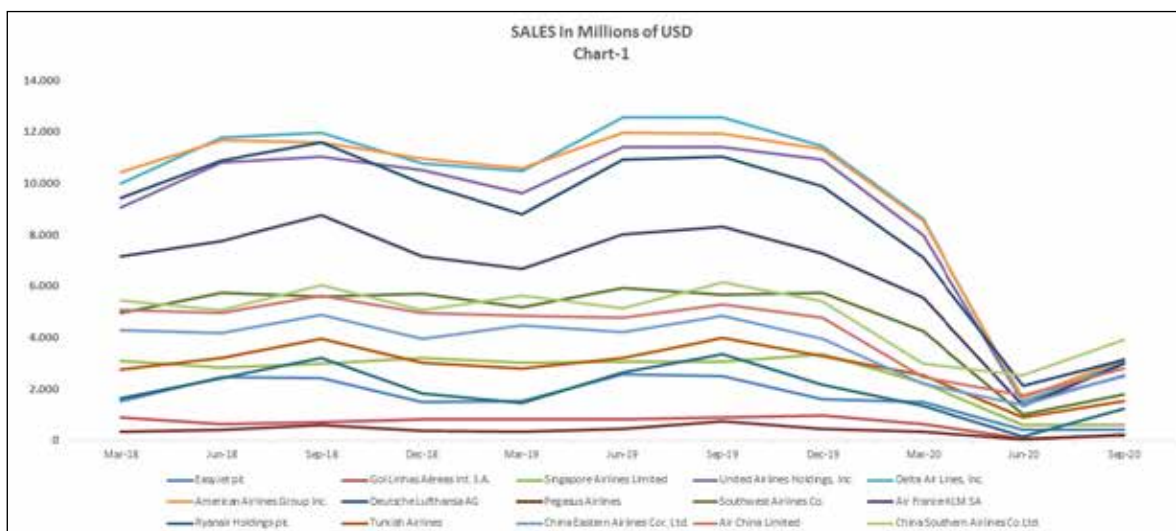
As we all know, September marks the end of the peak season both in tourism and the aviation industry. Generally, the third quarter financial outlook of the airlines in

the northern hemisphere is of great significance in terms of evaluating their performance in figures. The real success of companies shows itself during this period of high travel demand. In the following quarter, there is a decline in sales and profitability. In general, the most positive

figures for the related year are generated at the end of September. Thus, we can see the effects of the pandemic more clearly over the September-end data.

I would like to present some points in order to evaluate the course of the industry with 15 publicly listed companies whose financial data was published at the end of September. I also wanted to include some other companies such as Qatar Airways and Emirates, but I couldn't access their financial data. I will try to outline the changes in the activities and fiscal structures of the companies through some tables and graphs.

When we look at the activities of the companies only in Q3 (not cumulative) of the last three years, we can see in **Table-1** how company sales show a change in years. Accordingly, the total sales of the 15 companies



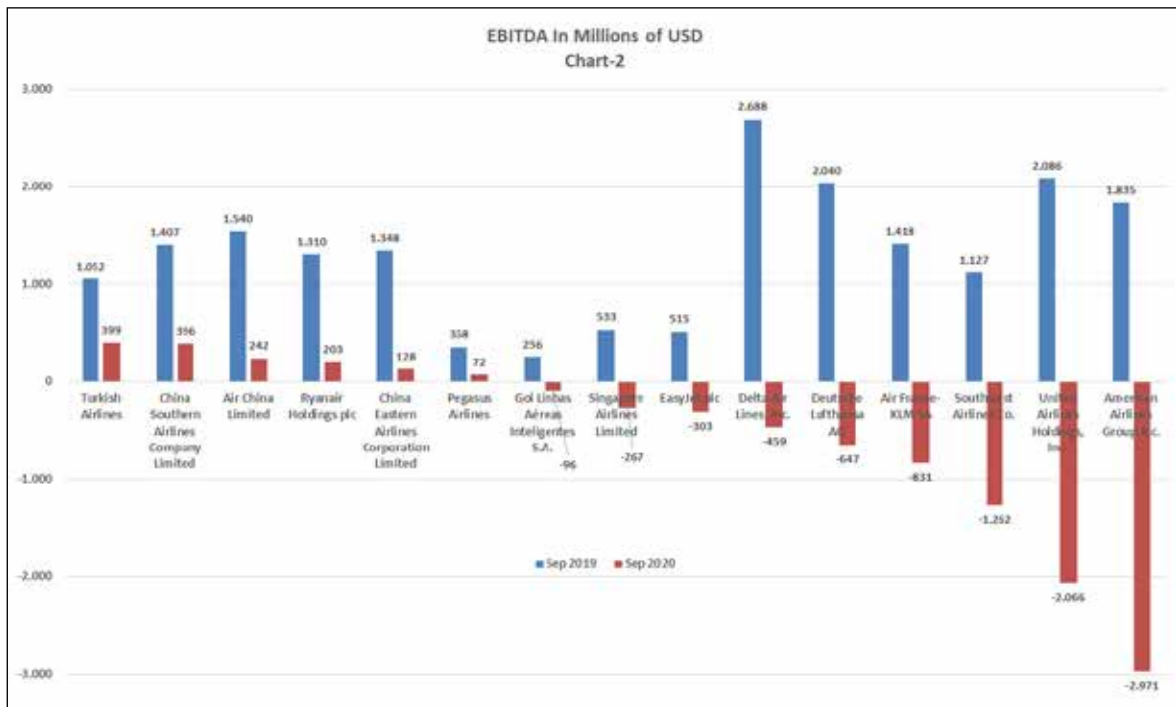
decreased by 67% compared to September turnovers both in 2018 and 2019. EasyJet, GOL and Singapore Airlines are the companies with the highest losses of 80% or more in their sales. While US airline companies have the highest turnover among these airlines in 2019, we see that this has changed after the pandemic. In 2020 Q3, the company with the highest turnover among 15 companies was China Southern Airlines with US\$ 3.9 billion, while American Airlines was the second with US\$ 3.2 billion and Lufthansa was the third with US\$ 3.1 billion. As can be seen from the table, Chinese airlines have the lowest decline in turnover compared to other companies. The course of turnover since the beginning

EBITDA Margin.% Table-2	Sep-18	Sep-19	Sep-20
Pegasus Airlines	33%	49%	35%
Turkish Airlines	27%	26%	26%
Ryanair Holdings plc	40%	39%	16%
China Southern Airlines Company Limited	20%	23%	10%
Air China Limited	26%	29%	9%
China Eastern Airlines Corporation Limited	26%	28%	5%
Delta Air Lines, Inc.	19%	21%	-15%
Deutsche Lufthansa AG	19%	19%	-21%
Air France-KLM SA	19%	17%	-28%
Singapore Airlines Limited	14%	17%	-45%
Gol Linhas Aéreas Inteligentes S.A.	12%	29%	-55%
Southwest Airlines Co.	20%	20%	-70%
EasyJet plc	19%	21%	-75%
United Airlines Holdings, Inc.	16%	18%	-83%
American Airlines Group Inc.	15%	15%	-94%

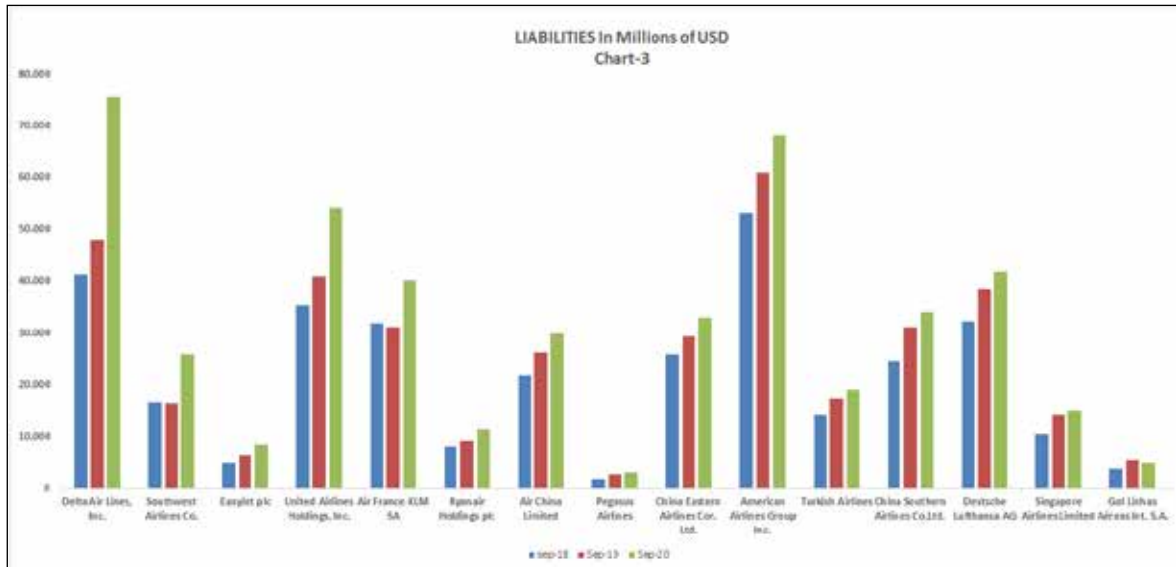
of 2018 and the sharp decline since June 2020 are clearly seen in **Chart-1**. When we examine the comparison made in similar periods in sales over the real operating profits (EBITDA),

we see that the EBITDA profit of airline companies decreased by 138% in total compared to September 2019. This loss is greater than the rate of decline in sales. Realizing the highest EBITDA

profit of US\$ 2.7 billion in 2019 Q3 among 15 airlines, Delta Airlines recorded a loss of US\$ 459 million in 2020 Q3. The profitability ranking among companies has also changed compared



## FINANCIAL REVIEW



to the previous year with the effects of the pandemic. With an EBITDA profit of over US\$1 billion in the same period of the previous year, the profitability of Turkish Airlines declined by 62% to US\$ 399 million in 2020 Q3. However, Turkish Airlines has achieved the best results among 15 airlines with

such profitability. On the other hand, while Turkish companies maintained the EBITDA margin, it is seen in **Table-2** that other companies' margins declined considerably and some of them took dropped into negative figures.

It is also noteworthy in

**Chart-2** that the companies with high EBITDA profits in Q3 of the previous year were the airlines with the highest losses in Q3 after the pandemic. While these companies (except Ryanair) appear as US and European airline companies, it is seen that Chinese companies do not incur losses despite

the substantial profitability loss. We can also say that the pandemic causes permanent damage to airline companies that encounter high EBITDA loss. It will be difficult to compensate for this loss over many years, with the damages to occur in the coming winter season.

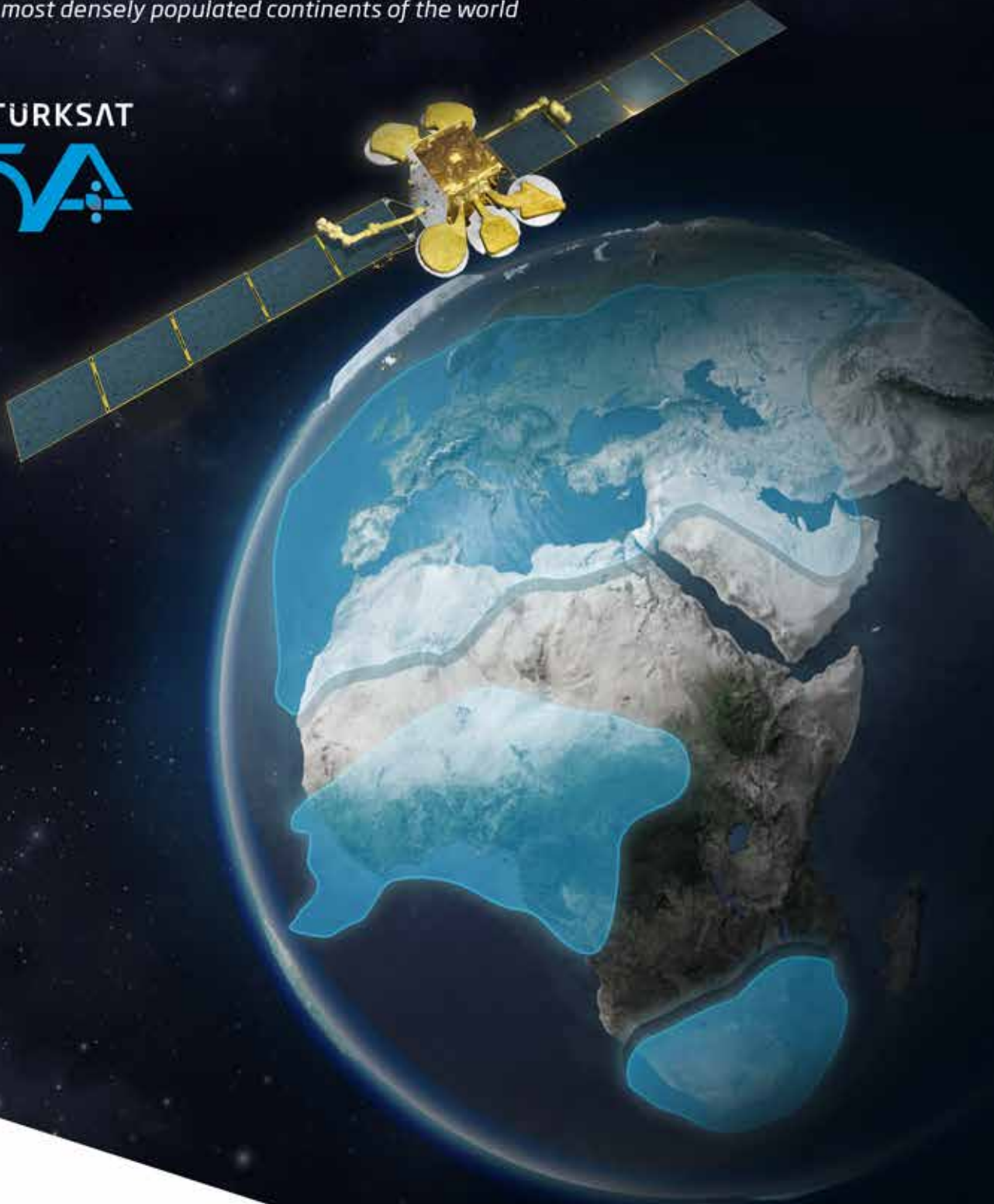
Many of the airline companies, the sales and operating profitability of which declined or even turned into losses, strived to endure this tough period through funds generated in the past and/or through borrowing. As a natural outcome, their working capital and fiscal structures weakened.

The total level of debt of the 15 companies increased from US\$ 377.6 billion in 2019 Q3 to US\$ 464.8 billion in 2020 Q3 with an increase of 23%. **Chart-3** illustrates the funds borrowed by companies in Q3 in the last three years.

EQUITY In Millions of USD Table-3	Sep-18	Sep-19	Sep-20
EasyJet plc	4.214	3.670	2.450
Gol Linhas Aéreas Int. S.A.	-1.115	-1.826	-2.517
Singapore Airlines Limited	10.550	8.825	11.460
United Airlines Holdings, Inc.	9.469	11.301	7.003
Delta Air Lines, Inc.	13.704	15.068	3.357
American Airlines Group Inc.	-568	160	-5.528
Deutsche Lufthansa AG	13.287	9.801	3.925
Pegasus Airlines	743	842	761
Southwest Airlines Co.	10.153	9.931	9.769
Air France-KLM SA	3.822	1.933	-5.480
Ryanair Holdings plc	6.335	6.929	5.838
Turkish Airlines	6.012	6.637	5.710
China Eastern Airlines Cor. Ltd.	8.985	10.036	8.809
Air China Limited	15.038	14.233	12.913
China Southern Airlines Co.Ltd.	11.591	11.000	12.376
<b>TOTAL</b>	<b>112.218</b>	<b>108.539</b>	<b>70.847</b>

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## FINANCIAL REVIEW

As the debts of Singapore Airlines and China Southern Airlines increased during the pandemic, their equities also increased. While the equities of other companies significantly depleted, the equities of some turned negative. The equity changes of the companies in the last three years can be seen in **Table-3**. In general terms, the distribution of liabilities has changed in favor of debts as a result of the increase in the borrowing of companies and/or the depletion of their equity.

In other words, I think there is an effort to overcome the impact of pandemic by financing assets through borrowing. This shows us that the financing costs that will arise as a result of the high indebtedness of companies in the medium and long term will pose a significant challenge in compensating their losses during the pandemic period. The financing costs to be incurred while trying to recover in the future should also be managed well. Another drawback may arise regarding the maturity structure of borrowed funds. Maturity mismatch between assets and liabilities may also cause trouble in corporate cash management in the medium and long term. Although it is a solution to overcome the difficulties in the short term, borrowing with an inappropriate maturity structure (short-term borrowing) may lead to more severe problems

Current ratio - Table-4	Sep-18	Sep-19	Sep-20	+/-
Southwest Airlines Co.	0,71	0,65	2,07	+
Singapore Airlines Limited	0,72	0,41	1,30	+
Delta Air Lines, Inc.	0,37	0,34	1,27	+
United Airlines Holdings, Inc.	0,63	0,54	1,04	+
Pegasus Airlines	1,76	1,37	0,96	-
Ryanair Holdings plc	1,25	1,27	0,86	-
American Airlines Group Inc.	0,58	0,49	0,74	+
EasyJet plc	0,97	0,79	0,67	-
Air France-KLM SA	0,78	0,68	0,62	-
Deutsche Lufthansa AG	0,78	0,68	0,62	-
Turkish Airlines	1,05	0,74	0,61	-
China Southern Airlines Co.Ltd.	0,37	0,19	0,34	+
Air China Limited	0,33	0,33	0,28	-
Gol Linhas Aéreas Int. S.A.	0,46	0,47	0,24	-
China Eastern Airlines Cor. Ltd.	0,27	0,26	0,24	-

in the next period. On the other hand, companies that have to overcome the crisis by investing in short-term assets through long-term borrowing may have low profitability in the future. This means that the loss will be compensated over a longer period than expected. Needless to say, we assume that companies will not undergo another crisis in the future.

Looking at the adequacy of companies' working capital after the equity increase and / or borrowing can also give us an idea on maturity matching. When we look at the data of the current ratio in Q3 over the last three years, which shows the capacity of companies in **Table-4** to pay their short-term liabilities with

current assets, it is seen that there are increases in US companies and Singapore Airlines and decreases in many other companies. In other words, we can say the significant portion of the funds, which US companies acquired through borrowing and Singapore Airlines through equity increase, was used in short-term assets. Although China Southern Airlines' current ratio increased compared to 2019, when we look at the average for the last two years, no significant increase has been recorded.

When we also look at the change in the fiscal structures of companies after borrowing due to the pandemic, we can clearly see the change in the resource structure stated

above in favor of borrowing in **Chart-4**. It is possible to say that the fiscal structures of all companies are negatively affected, except for Singapore Airlines, whose resource structure is sound in terms of equity, and China Southern, which has not undergone a significant change compared to previous years. The fact that companies prefer to overcome the pandemic through borrowing (some of which comprises state aid) actually means that they defer the problem in a sense, as we previously stated. The more deterioration in fiscal structure compared to previous years, the more severe the problems and their duration will become in the following period. Fulfilling part of





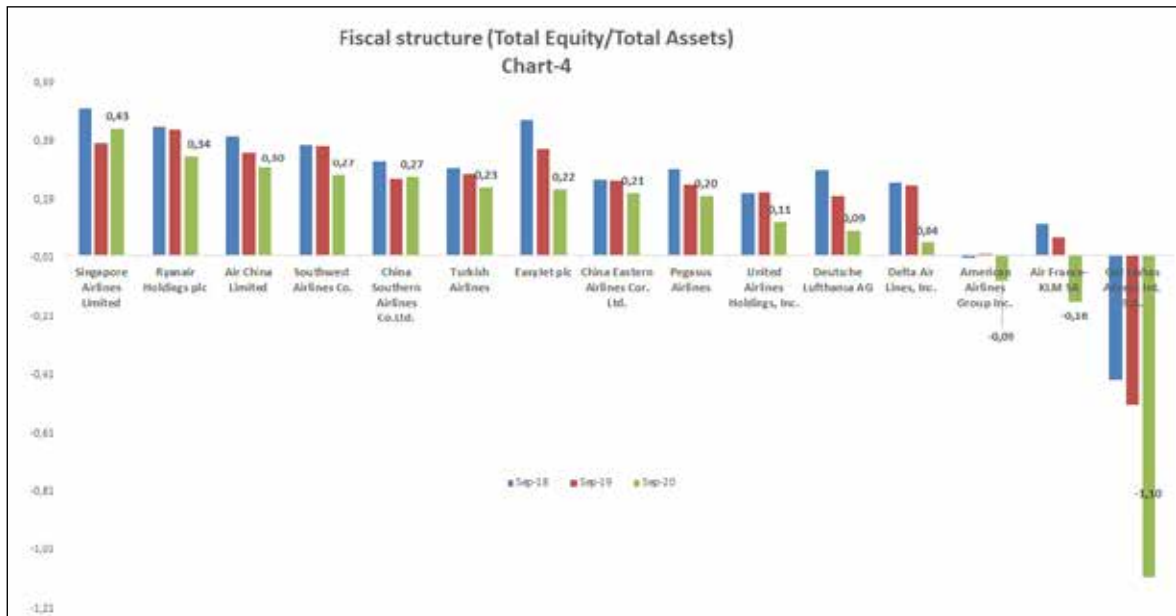
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the resource needs by increasing equity will make it easier to solve the problems and will enable companies to return to their pre-pandemic situation (number of passengers, market share, etc.) sooner. Despite the fact that borrowing is a solution in the short term, it can lead the related company to lag behind its strong competitors in the post-pandemic period.

On the other hand, as it will be difficult to put any other securities in place except share transfer in return for unpaid debts, we will probably see partial nationalization and / or airline companies to be owned by financial institutions in the future.

Certainly, it would be quite assertive to make a definitive judgment on the overall aviation

industry, based only on the balance sheets and income statements of the 15 airline companies of which we are trying to examine changes in their sales volumes, operating profitability, borrowing, fiscal structure and working capital before and after the pandemic. However, the figures of some companies, which have an important place in the global aviation industry and in their own region, give us the opportunity to make some comments and draw inferences.


I don't want to make a generalization, but it seems that American and European network airlines have been suffering more from the pandemic than other companies and it will be difficult for them to overcome the impacts of the pandemic for a long while. On the other hand, the working capital

of these companies did not show a considerable change or were stronger than the pre-pandemic period. Therefore, it is quite positive for these companies that there will be no problems in terms of cash management and managing short-term liabilities.

The remaining companies will possibly recover much more quickly in the aftermath of the pandemic. We see that these companies are the ones that entered into the pandemic process with a strong financial structure and / or successfully have managed their operating profitability in this process. Turkish Airlines and Pegasus Airlines also are included in this group. We can also say that the Turkish companies will have the competitive advantage after the pandemic, if they

do not make any strategy mistakes and do not suffer any significant damage during the winter season.

Chinese companies are also in an advantageous position, but the negative outlook on their working capital adequacy creates the impression that they may have difficulties in cash flow management in the short term. Among the 15 companies, we can easily say that the companies with the potential to make the biggest moves after the pandemic are Singapore Airlines, the second is Turkish Airlines and the third is Ryanair, and they are followed by low-cost carriers.

**Note:** Sources used for financial data of companies: <https://seekingalpha.com/> and Bloomberg 

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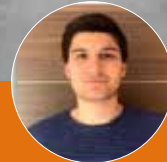
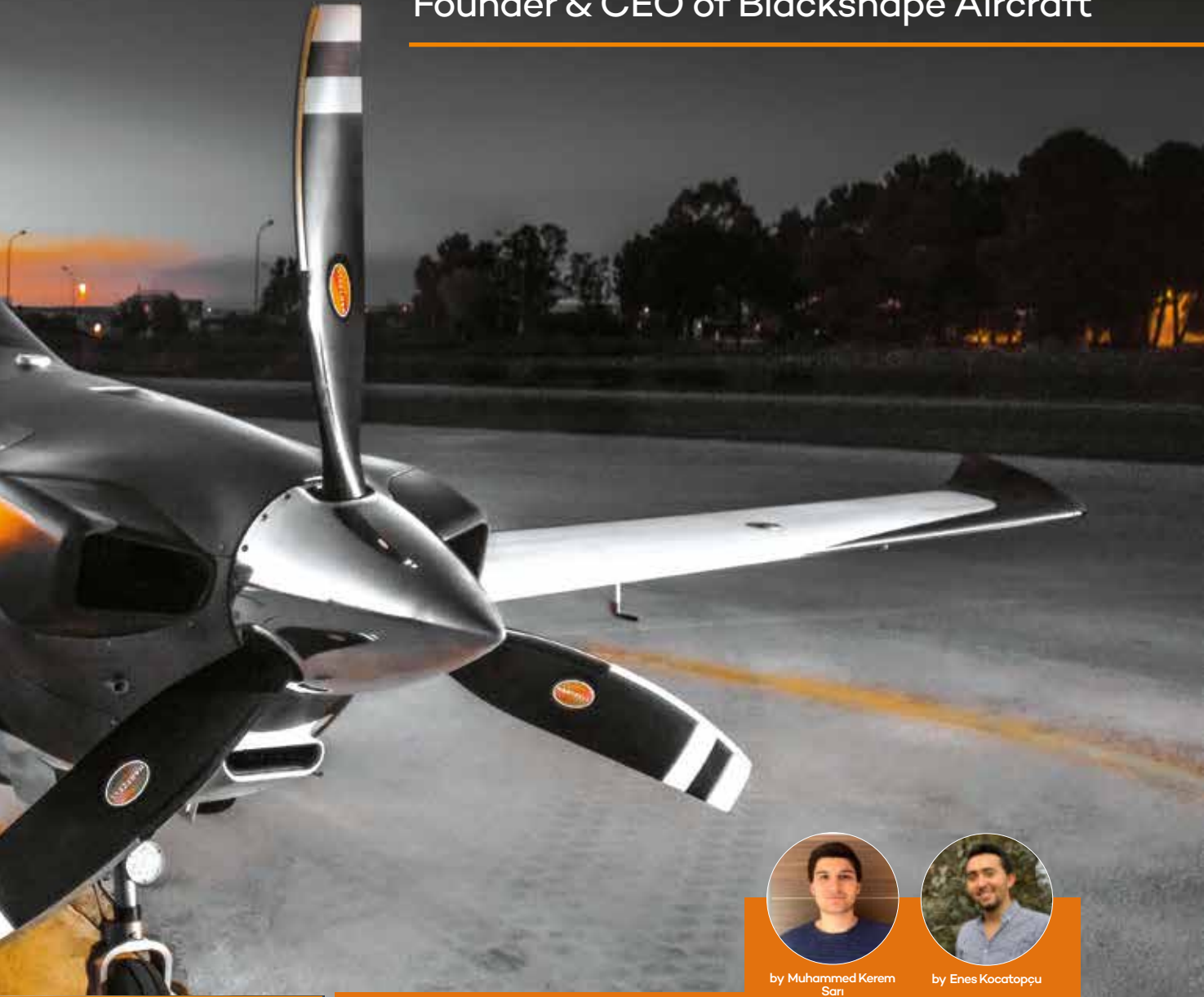
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# Blackshape Aircraft 2020

with Luciano Belviso,  
Founder & CEO of Blackshape Aircraft



by Muhammed Kerem  
Sari



by Enes Kocatoğlu



As a task force of young aviators, BCI4@ Team by the motto of "...understanding the future of aviation with the facts and figures of today!" was founded as a part of the CAN'CA Intellectual Projects by Can Erel.

With its business and academic mentorships, BCI4@ Team conducts interviews called "Business Cockpit Interviews (BCI)" with decision-makers and/or senior executives in the international and domestic aviation industries and shares.

In this interview with Luciano Belviso, Founder & CEO of Blackshape Aircraft, we focused on

his aviation background, Blackshape Aircraft, and general aviation and training technologies in this company. We would like to thank Mr. Antonio Amendolagine, Marketing Manager of Blackshape Aircraft, and Ms. Ilaria Trapuzzano, Communication and Media Manager of Angel Company, for their contributions in forming the structure of our questions and of course Mr. Belviso for his time and the thoughts he shared. Also, we would like to thank our adviser M. Celalettin Değirmencioğlu for his full support in this interview process. Enjoy the interview!

## BUSINESS COCKPIT INTERVIEWS

**BCI4@ Team:** Can you share a bit about yourself and your career path Mr. Belviso?

**Luciano Belviso:** I've always been fascinated by technologies and by all mobility industry. I learned my degree in Aerospace Engineering from the Polytechnic University of Turin and I completed my university studies with a Master's in Mechanical Engineering from the Federal Polytechnic School of Lausanne, Switzerland, and a Master of Laws from the University of Paris XI in France. I believe my curiosity and the desire to grow professionally, encouraged me to travel the world and have my first working experiences in Europe, Russia, Canada, India and South America. For unknown reasons, I think everybody gets "old" when they turn 23, so at 25 I decided to return in Italy and reinvest what I learned in one of my projects, with the dream to create something unique and to become a Made in Italy excellence. Funny enough, when you get "old" at 23 you are not really old, and I'm thankful for all the opportunities this season of my life is offering.

**BCI4@ Team:** How do you evaluate the future of the ultralight and light aircraft market, especially in the next decade? Also, what is the importance of investing in this area?



Luciano Belviso,  
CEO of Blackshape Aircraft

**Luciano Belviso:** With the new Basic Regulation, European countries have the possibility to increase the MTOW of ultralight to 600kg, like Germany did from 2018. This will certainly bring new life to the UL market. Concerning the light aircraft market, I believe the situation is different from country to country, depending on infrastructure and

taxation. However, most people probably didn't realize, but we all face a new era in aviation, due to the investment in technologies and their application to the aviation business.

For instance, VTOL or electric propulsion will likely have an outcome in the light aircraft market. Even though these

technologies are not mature yet, I believe in a short while the traditional feeling of the good and old times of the aviation community will leave the floor to the all-new excitement for what will come next.

A shift of the aviation culture is also likely to be soon, following what happened in the automotive industry. I refer – for instance – to shared mobility or to the experience market.

All these factors will probably contribute to a growth or – I would rather say – to a democratization of the aviation culture which will slowly enter everybody's life.

This will be a tremendous opportunity to expand the business to a much larger customer base, which – similarly to the automotive industry – will likely be polarized between those who choose an aircraft to travel from A to B and those who are focused on "how" that travel will be sharing our values in terms of performance, design, overall quality and emotions.

**BCI4@ Team:** How has COVID-19 affected the ultralight and light aircraft market?

**Luciano Belviso:** I believe COVID-19 is acting like an accelerator to bring processes to their outcome. Europe has



Blackshape Prime

## BUSINESS COCKPIT INTERVIEWS

different fragile markets that are suffering from this pandemic which will probably require attention by regulators, more infrastructure and more aviation culture. If COVID-19 made us aware of this, I think we should act soon. Blackshape has a presence on all continents, but our HQ is in Europe and we're committed to playing our role also to facilitate rulemaking processes.

**BCI4@ Team:** In which areas has Blackshape solutions made a difference in the period of COVID-19, a time when the search for private flights has increased?

**Luciano Belviso:** If we refer to the recreational market, our product has a high positioning, therefore our customers were only marginally affected by COVID-19 (logistics and test flights). We see very similar behavior with respect to other sectors (i.e. high-end sport cars) where some companies had record sales.

**BCI4@ Team:** Can you tell us about Prime and Gabriel? What are the differences between them? What are their superior characteristics compared to other aircraft?

**Luciano Belviso:** Blackshape Prime is a two-seater ultralight aircraft conceived for the recreational market.



© Blackshape Aircraft

Blackshape Aircraft  
Production Team

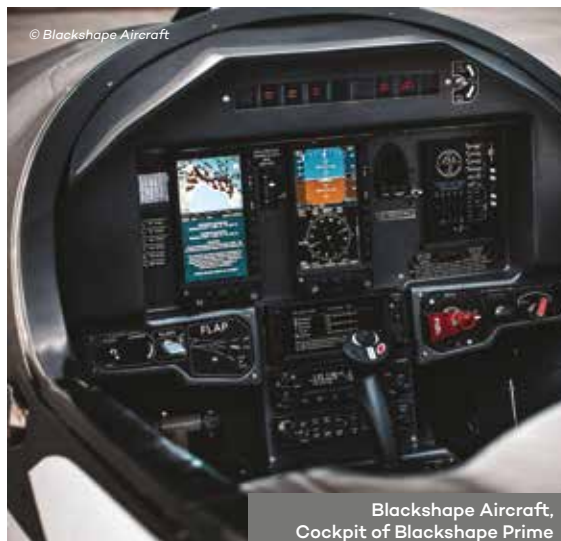
We've been working hard on its flight performance and details to offer an amazing flight experience and our design is made in Italy. The Prime is a "Supercraft", unique in its category and already in use in 18 countries worldwide. In Europe, it is possible to pilot it with an ultralight aircraft pilot license. The Prime is in use also in different training organizations outside Europe and this brought a

lot of experience with it for our future design. When we started to think about the Gabriel we already had the experience of our customers in mind and we wanted to make the perfect ab-initio trainer to suit modern training needs. Thus, the Gabriel is a general aviation aircraft conceived for the training of professional pilots, both civil and military. Thanks to its versatility, Gabriel can also be configured

as recreational, for the extreme performance lovers, who have a Private Pilot License (PPL). The aircraft has data-recording systems onboard that make it a sort of 'flying lab', with state-of-the-art equipment and avionics and with dual controls to carry out a detailed analysis of the cadet's skills. These features allow Gabriel to fill a gap in the aviation market and train the next generation of cadets.

**BCI4@ Team:** What type of innovations have come to the market as a result of Blackshape's approach to design and production processes, training, and flight activities?

**Luciano Belviso:** We use concurrent design from the very beginning, and we involve our customers at a very early stage of the development. We manufacture all our



© Blackshape Aircraft

Blackshape Aircraft,  
Cockpit of Blackshape Prime

## BUSINESS COCKPIT INTERVIEWS

aircraft in CFRP with autoclave moulding – same process of the Boeing 787 – which makes the airframe last for its entire life without need of intermediate actions.

But apart from design and manufacturing, we are always driven to deep dive into specific market needs (training, ISR, etc.) and approach them in a holistic way to build our “innovation”. That’s the most attractive part of our work.

**BCI4@ Team:** You have accomplished to participate in the largest EU funded defense research project for maritime surveillance. What do you think about its significance for your company?

**Luciano Belviso:** ISR (Intelligence Surveillance and Reconnaissance) and autonomous flight constitute a pillar in our developments and strategy. We live in a geopolitical climate that requires, for needs ranging from the fight against smuggling to piracy, a series of strategic and tactical surveillance actions. We



created an aerial platform capable of intercepting and recognizing threats, generating an alarm to favour an intervention that contrasts the threat itself. Among the technologies used, there is also remote piloting.

**BCI4@ Team:** How are Blackshape's aircraft used for beginner flight training of amateur aviators? Does Blackshape Aircraft have educational solutions for this?

**Luciano Belviso:** We normally take care of our customers from all points of view. We offer tailored solutions based on every

specific need, and we have many customers who learned how to fly directly in our aircraft. Some of them decided to learn how to fly because of our aircraft as they wouldn't have been attracted to start their license on another kind of airplane.

**BCI4@ Team:** What are your thoughts on the importance of civil pilot training programs in this and future era?

**Luciano Belviso:** We started to be active in the field of pilot training but, unlike most solutions offered, we specialized on the skills to be delivered to pilots. In other words, we create

tools to train captains, not simply pilots. Until autonomous commercial flights will be possible (we don't have the enablers today) this sector will need captains accountable and responsible to keep air transportation the safest way to move people. As suppliers of integrated systems that allow the selection and training of pilots, this is our mission and our commitment.

**BCI4@ Team:** How would you evaluate the future of autonomous piloting? What is Blackshape's position in this industry? Are there any new projects on this subject?





**Luciano Belviso:** Autonomous flight has great potential and like all technologies with a possible disrupting impact need to be considered very carefully. We already flew remotely our ISR platform and for some markets this technology already has the right level of maturity. We're investing in this sector and we do have new projects in our pipeline.

**BCI4@ Team:** Do you think use of VTOL aircraft will expand in the future? What action can Blackshape take in the VTOL-aircraft market? What aspects will set it apart from its competitors in this market?

**Luciano Belviso:** The VTOL market is very attractive, and it was anticipated to expand the customer base and enable other forms of mobility (i.e. urban areas, goods delivery, etc.). However, the technology to enable such a revolution needs uncompromised attention to go through its growth and become ready for certification. I believe there's a huge difference between demonstrating that vertical flight is possible (of course, it is) and making it a realistic solution, certified and available to customers.

We've always been interested in the aviation business itself; we unveiled our last aircraft (the *Gabriel*) only after its certification, so what I can say – for now – is that we're considering very seriously all perspectives that technology offers.

**BCI4@ Team:** What does Blackshape and Angel have in mind for the Turkey market in terms of products? What do you think about the future market in Turkey?

**Luciano Belviso:** The Turkey market is surely interesting to us, and we are confident the next years will unlock important opportunities in the aerospace and aviation sectors. Moreover, we have an historical proficient relationship with Turkey within Angel Group: MERMEC, global leader in Railway Diagnostics and its sister company, provides Diagnostics Solutions helping to monitor the health status of the entire Turkish Railway.

**BCI4@ Team:** What would you recommend to young people aiming for a career in the ultralight and light aircraft industry?

**Luciano Belviso:** Be passionate. Every sector with the right passion is good, but if your taste brings you to aerospace, you're lucky. We face very interesting times rich with opportunities and those who have the passion to go through difficulties will be happy to be in the domain which will potentially re-shape our world 🌍

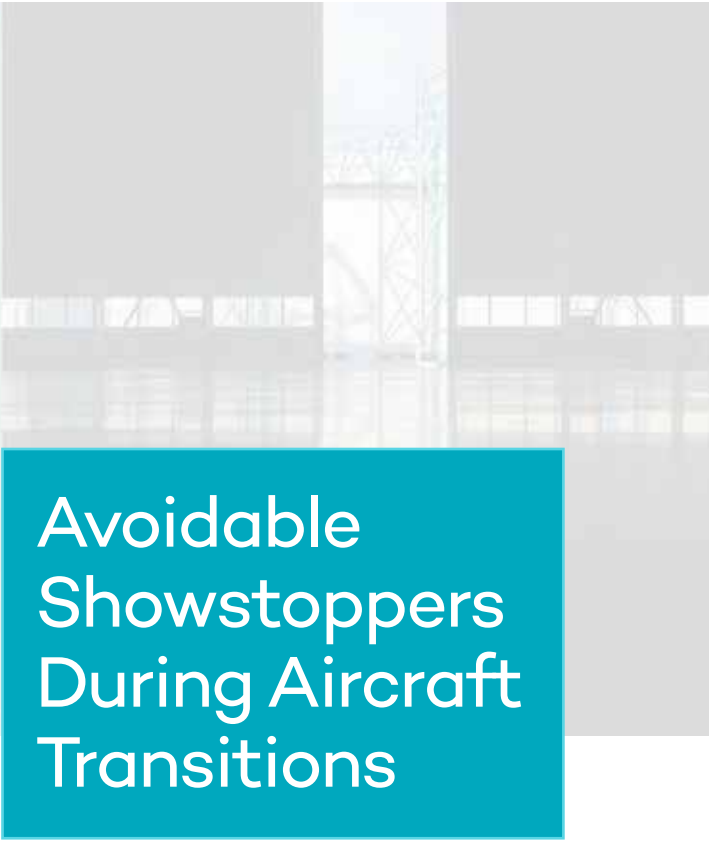


**Luciano Belviso, Founder & CEO of Blackshape Aircraft**

Luciano Belviso holds a Bachelors in Aerospace Engineering from the Politecnico di Torino, Italy, as well as a Master of Science in Mechanical Engineering from the Ecole Polytechnique Fédérale de Lausanne, Switzerland, and a Master of Laws from the Université Paris XI, France. He is a member of the Space Generation Advisory Council in support of the United Nations Space Program, member of the International Institute of Space Law. His academic and professional experience includes Europe, Russia, Canada, India and South America.



Blackshape Aircraft Hangar



# Avoidable Showstoppers During Aircraft Transitions



by Cengiz Armutlu  
Industrial Engineer, ISO/IEC  
17024 Certified Expert

In a recent article I explained the importance of aircraft record keeping and digitalization of records to ease aircraft transitions, save costs and asset value. In this article I will try to highlight the most common pitfalls that can occur during aircraft transition projects. I have personally managed many such projects to support lessor and lessee customers where I have collected valuable firsthand experience and expertise.

The most important issues before starting an aircraft transition project for the parties are to have a clear understanding of their asset status and the status of the records. Starting a project blind will mostly cause long delays and budget risk exposure due to penalties and additional maintenance costs.

An aircraft transition requires good preparation in a timely manner. The lessee needs to know the exact lease return conditions, which are agreed upon during lease agreement execution, and compare the current Status of the aircraft, its parts, and related documents against these return conditions. The gaps between the lease return conditions and the current condition of the aircraft and its parts will be the basis of the

aircraft transition layover work package. The more the lessee knows about these gaps, the less risk will be faced during the aircraft transition phase and unexpected costs will be reduced or avoided altogether.

The following issues are the most common hurdles which jeopardize the time plan and budget plan during an aircraft transition.

## Engine and APU condition

Engines are the most-costly part of an aircraft asset. Therefore, special attention needs to be given to the physical condition and performance condition of the engine.

A pre-BoreScope Inspection can be a

precautionary action to see the physical status of the engine and an APU (Auxiliary Power Unit) and provides the lessee with the ability to adjust the works scope accordingly. This can save valuable time, since if an engine fails during the acceptance BoreScope Inspection at the end of the layover, it will cause a significant delay from one month to six months depending on if the repair can be completed onsite or in the engine shop.

Engine health monitoring is a non-avoidable part of modern Maintenance programs and needs to be followed carefully. Even a certain Performance level allows the continuation of engine operation, but it may be not acceptable to the owner of the asset

during lease return. Mostly lease return conditions define a minimum Exhaust Gas Temperature Margin (EGTM) level. EGTM is the difference between the peak EGT reached during take-off and the certified max EGT, which is used to evaluate and follow engine health and possible time on-wing. The Operator follows the EGTM trend to see the health condition of the engine to calculate the engine replacement time and take the necessary action according to this projection. During the lease Return this parameter is an important indication whether the engine will be accepted or failed. Engine performance deterioration rate can be reduced with periodical engine washes during the operation period, but if the remaining EGTM is becoming too low or below the contractual level, a possible performance Shop visit needs to be considered before starting the Transition period.

Another important issue is the usage of Part Manufacturer Approval (PMA) Parts especially on Engine and APUs, but not limited. Parts Manufacturer Approval is an FAA design and production approval for aircraft parts which allows them to be installed to the aircraft and for its parts to be used as alternatives to OEM (Original Equipment Manufacturer) parts. The



Two CFM 56 Engines waiting to be repaired onsite

usage of such certified PMA parts can save the operator costs during the time of operation, but the lease contracts usually don't allow the use of PMA parts without any exception or don't allow the usage of PMA parts for critical Systems such as the engine and APUs. Principally, using PMA parts during operation on a leased Aircraft or engine is subject to lessors approval, but mostly this is not allowed and during the lease return the lessee operator needs to prove the non-usage of PMA parts with a statement. If an Operator uses PMA parts in their operation, these parts most probably would need to be replaced by OEM parts before the lease return, which causes additional costs.

### Life-limited part Back to Birth (LLP BtB) issues

A life-limited part (LLP) is a part with a hard limitation mostly limited to flight Cycles but rarely also Flight Hours or calendar days. LLPs are mostly installed on Engines, APUs and Landing Gears.

Airlines are using more and more used LLPs as a replacement of an LLP which has reached the approved limit. The Operator calculates the remaining operation time of the asset and the required minimum LLP life during the lease Return and sources the appropriate LLP from the secondhand market. Installing used LLPs have a big cost saving potential

comparing to installing new LLPs which will cause high costs and give away the unused life-limit of the parts. The increased usage of used LLPs has caused a significant increase in the focus on LLP BtB Documentation.

Aircraft documentation is inspected in detail during the delivery and redelivery processes with special attention place on LLPs and their trace to birth (manufacture). Airlines are responsible for the safety of flight and they need to ensure that documentation meets airworthiness standards. Additionally such documentation is considered to be very important by the lessors and aircraft owners as it can have a significant impact on asset value



An A319 waiting for its two CFM56 Engines to be reinstalled after repair

and marketability of the aircraft or its parts such as Engine, APU, Landing Gear or the LLP as a standalone part.

The Problems begin mostly due to the differences between aviation regulation requirements vs. industry requirements considered to be commercial LLP transactions. Aviation regulations typically require an operator to know the current life status of its LLPs. However, to know the current status of the LLP is not sufficient for industry LLP transactions and the lessor or owner of the asset requires the full BtB traceability of each installed LLP such as all the removal installation Data, accumulated cycles and categories, incident/accident clearances, ownership status of the LLP from the time of birth up to the current transaction time.

Since this issue is becoming more and more important

during the aircraft transition process, the IATA Aircraft Leasing Technical Group prepared Guidance Material and Best Practices for Life-Limited Parts traceability in June 2020. This document helps industry professionals to better understand and have a guideline to follow during lease preparation. Beside the definitions the document provides a lot of information about the necessary documentation, considering different scenarios of transactions and some templates for the LLP Documentation.

To avoid any unexpectedly surprises the lessee operators need to check the LLP BtB traceability critically before they agree to buy and install subject LLPs. Furthermore, a BtB traceability review needs to be performed after each Shop visit and before the Aircraft transition process. A lack of proof about the birth traceability can lead to a number of unwelcomed financial repercussions.

## Aircraft Structural condition

An aircraft can have many operators in its entire lifetime, and during operations structural damages will occur, where some of them are within limits as per the Structure Repair Manuals (SRM) and can be left as is, and some of them are beyond the limits and need to be repaired as per the Structure Repair Manual or Original Equipment Manufacturer (OEM)s instructions. All these events need to be documented in a proper way and must be listed in a Dent and Buckle, Repair chart. All the necessary documentation with necessary information such as the Structure Defect Reports, SRM extracts, Material Information, Work Orders, required Nondestructive Test (NDT) inspection Reports, OEM instructions

etc. must be kept in proper order assigned to each Structure Item.

The operators should update these documents continuously during asset operation and performing a full structural assessment of the aircraft is highly recommended in an appropriate Layover mostly within C Checks prior to the Lease return layover. This will help to expose any gaps between the current existing structural damages, repairs, and the respective Documents. This can allow time for the operator to search for the missing documentation from the historical records. If a lack of documentation is discovered for an existing repair during the lease return process, the end result may end up being a requirement to remove the existing repair and perform it again which causes unnecessary costs and time delays for the transaction target.

The IATAs Guidance Material and Best Practices for Aircraft Leases Annex V provides valuable information about Structural Repair files and it can be used as a Guideline during the preparation of Structural Repair files.

## Aircraft Cabin condition

It is typical for Aircraft Cabins to undergo some refurbishment, cabin layout changes during the change of operators or during the lease term of one operator. These cabin layout changes are mostly performed with OEM Service Bulletins or Design Organization Approved (such as EASA Part 21 Approval) Change Bulletins. These changes need to be documented very well and the spare parts need to be secured for continuous operation. Aircraft cabins usually suffer damage due to heavy usage and the fact that they are being kept within an operator's standard which is not always the industry standard. Cabin material is mostly subject to long lead times, up to 6 months. This will cause delays on the aircraft transition layover since the parts are almost never delivered within the layover period. Cabin defects depend on the category, as cosmetic or if it is an airworthiness

issue it may delay the entire Transition process or at least it has a financial impact in the form of compensation during the acceptance process.

The Operators need to have a continuous overview on the Cabin status and maintenance firstly for their commercial appearance to the passengers and for the lease return process. Therefore, a dedicated cabin team can have more control over the status of the aircraft cabin on the entire fleet and can order the required parts in advance of the aircraft transition layovers to avoid unnecessary delays in the process.

The core interest of Operators is to operate the aircraft safely and cost efficiently, therefore they often concentrate more on daily operational requirements and tend to ignore or not pay sufficient attention to the lease return conditions in a proactive and timely manner. A professional team experienced in the aircraft transition management can help to prepare the aircraft and its records for the Lease return without any daily operational stress. Investing in proper preparation can save extra expenditures, time, and stress ☑



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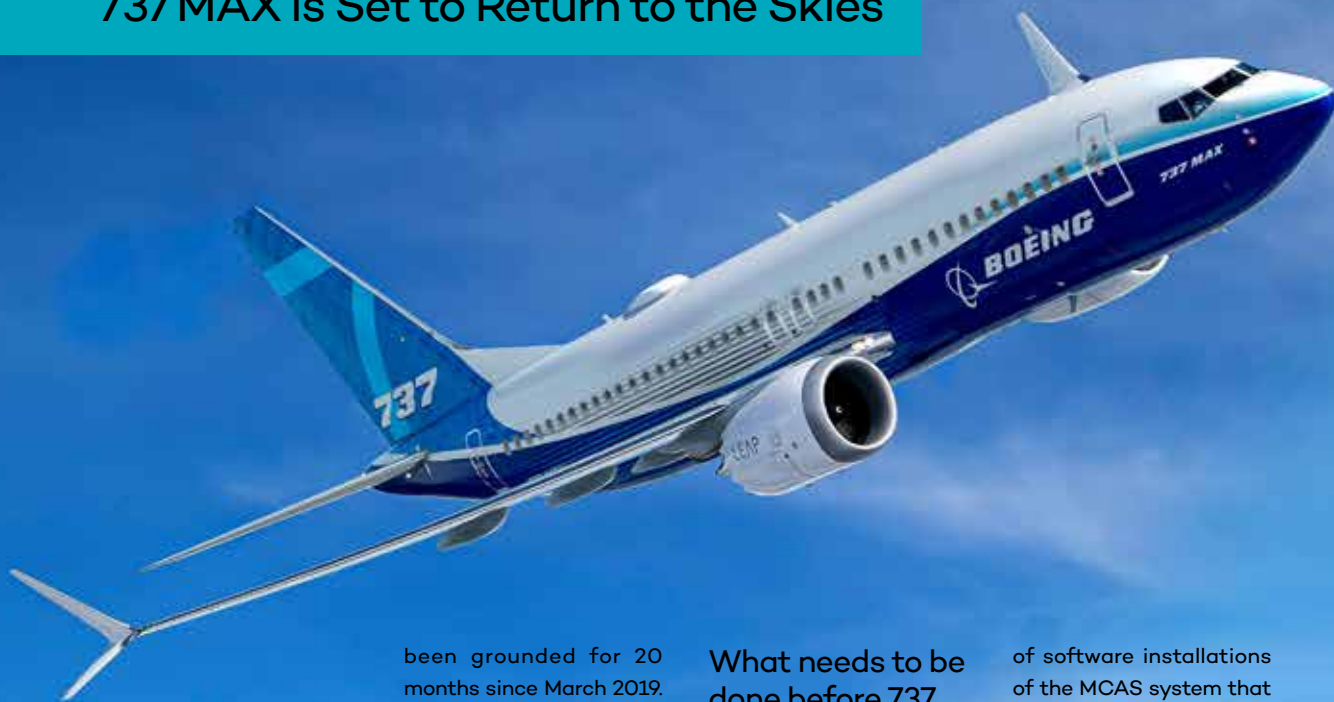
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# Boeing Wakes Up from A 20-Month Nightmare!

## 737 MAX is Set to Return to the Skies



by Muhammed Yilmaz  
Aeronautical Engineer

Finally, some good news after months! The U.S. Federal Aviation Administration (FAA) has lifted the longest jet flight ban ever in commercial aviation history and approved the 737 MAX's return to the skies.

The 737 MAX jets, which crashed twice, once in Indonesia and in Ethiopia within a period of 5 months and led to a tragic loss of 346 people, had

been grounded for 20 months since March 2019. Following the updates on the jet to increase flight safety, new training protocols for pilots and the successful completion of comprehensive safety tests, the FAA announced that they rescinded the order that grounded the aircraft and published an Airworthiness Directive (AD) 2020-24-02 on November 20, 2020.

MAX jet has become the most reviewed aircraft in aviation history. "We've done everything humanly possible to make sure these types of crashes do not happen again," said FAA Administrator Dickson and who also piloted a MAX jet on a test flight.

### What needs to be done before 737 MAX will be able to fly again?

With its Airworthiness Directive AD 2020-24-02, the FAA also detailed what needs to be done before 737 MAX's return to the skies.

Accordingly, the implementation of the procedures for the aircraft returning to service which have been storage for an extended period of time as per Aircraft Maintenance Manual Chapter 10, performance of scheduled maintenance operations, adaptation of the changed MMEL (Master Minimum Equipment List) to company's MEL (Minimum Equipment List), completion

of software installations of the MCAS system that caused both crashes, and the latest versions of the documents are to be used in all operations and the application of other ADs that have not previously been applied to the aircraft other than AD 2020-24-02 are to be completed.

It was emphasized that after changing the installation instruction of the horizontal stabilizer trim wire and performing the AOA-angle of attack sensor system test followed by a final test flight, the aircraft can return to commercial operations if everything goes smoothly. Before the test flight, a 280-man-hour process has to be completed on each aircraft. In addition, the training procedures of

the 737 MAX pilots have been changed, making it compulsory to provide 5 hours of extra training to each pilot. 2 hours of this training will be given in the simulator.

## War room is to be established

When commercial flights resume, Boeing will run a war room desk, monitoring all MAX flights 24 hours a day. From stuck landing gear to health emergencies, even the slightest problem on the aircraft will be monitored closely by this war room team.

## The EASA takes more cautious approach

Airlines in the U.S. are free to relaunch commercial flights with the 737 MAX after meeting the requirements of the FAA. However, other civil aviation authorities around the world have not approved the MAX's return to service yet.

The reaction of the European Union Aviation Safety Agency (EASA) was eagerly awaited by the aviation industry after the FAA's announcement; the EASA made a written statement, declaring that it has decided not to adopt AD 2020-24-02, which describes the procedures to be done in order for 737 MAX to fly again. The EASA, which finds the precautions taken by the FAA insufficient under certain matters, announced that the necessary assessments would continue.

The EASA has announced its own AD draft (PAD) on the subject. The PAD will remain open to comments for twenty-eight days and anyone interested in the subject will be able to submit comments and opinions during this period. The EASA AD, which will allow 737 MAX aircraft to fly in European airspace, is expected to be published in January 2021 at the end of such period.

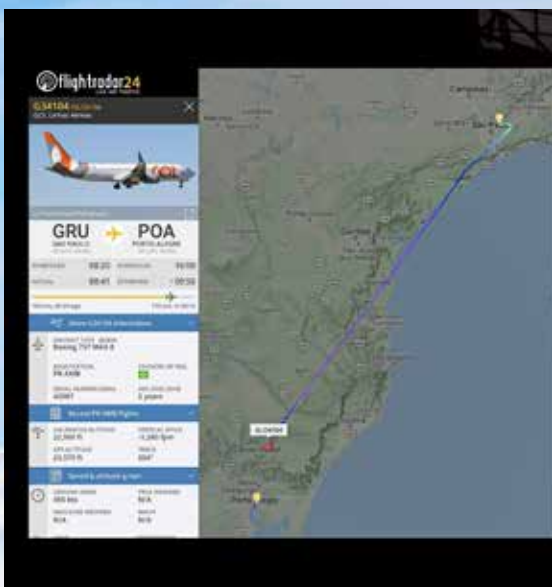
In the AD proposed by the EASA, unlike the FAA, the Boeing Service Bulletin (SB) is requested to be applied on the aircraft, which will enable the "Stall Warning" system (stick shaker) to be deactivated if requested, once it has been erroneously activated by the system and causing workload increase and panic in the cockpit. In the relevant SB, it is suggested that the Stall Warning system circuit breaker buttons can be used to deactivate the Stall Warning system by placing on them colored caps.

In the PAD of the EASA, the RNP-AR, which allows precise approach to aircraft using GPS technology, is proposed to be banned on 737 MAX aircraft. The justification for this ban is explained as the risk of AOA failure during this operation would cause irreparable results. The public mood is that if

this proposal of the EASA is accepted and put into practice, it opens up an opportunity for the Airbus A320 family, the biggest competitor of the 737 MAX.

The EASA's draft AD also brings additional flight training to pilots. For the training to be given in the flight simulator, the relevant simulators will also need to be modified to meet the requirements of such training.

The civil aviation authorities of Brazil, Canada and India announced that they would continue their assessments, and the aircraft would continue to be grounded during this period, and that they wanted to conclude such reviews soon. It is also unclear whether the Chinese civil aviation authority, which led the way for grounding the jets around the world, will lift the flight ban on MAXs.



737 Max 8 of GOL Airlines lift off from São Paulo to Porto Alegre, along Brazil's eastern coast on 8 December, 2020



### When will the first commercial MAX flight be conducted?

Despite the removal of some barriers and positive developments for MAXs to return to service, Boeing still has a hard battle ahead.

There are currently 390 737 MAXs in the fleets of airlines around the world. The U.S. manufacturer has almost 450 already-built 737 MAXs waiting to be delivered to customers. The FAA requirements for these aircraft have to be met by Boeing. This is thought to have caused further delays in deliveries, but airlines are, on the other hand, looking for ways to delay their deliveries for all aircraft types due to the negative effects of the pandemic.

On the other hand, Boeing's key customers announced that they will not place new orders for the 737 MAX until the conditions change positively. Ryanair, one of Boeing's biggest customers in Europe, announced that they did not consider placing new orders for the 737 MAX. Southwest Airlines of the

U.S., known as Boeing's largest customer, worldwide, announced that they might delay the delivery of the new 737 MAXs they had ordered and planned to lower the number of aircraft in their fleet. Moreover, Southwest management also announced that they did not plan to fly the previously received 34 737 MAXs until 2021 Q3 and Q4.

American Airlines plans to conduct the first commercial flight with the 737 MAX at the end of December. The airline will also activate an application that allows passengers to change their tickets free of charge if they do not want to fly with MAX.

### The "MAX" brand will gradually disappear!

Boeing is trying to figure out how to completely remove the 'MAX' brand in the future, whose criminal record has increased significantly. That's why when talking about MAX jets, it uses the names 737-8 and 737-9. Brand Finance, the independent consultancy company, announced that MAX's problems have

caused enormous damage to Boeing's reputation to the tune of US\$ 7.5 billion, according to the study it conducted last year.

### When will the 737 MAXs fly in Turkey?

There are currently 3 airlines in Turkey that have 737 MAXs in their fleet. Turkish Airlines received 12 jets before the flight bans. These jets are grounded in Istanbul. Twelve more MAXs were manufactured to be delivered to Turkish Airlines in a 20-month period and are waiting to be sent from Seattle to Istanbul. THY has already placed a total of 75 MAX orders. Corendon was the first airline among Turkish companies to include the 737 MAX in its fleet. SunExpress was also expecting to receive the first 737 MAX in April 2019. This delivery was delayed due to the grounding, but the related 737 MAXs are waiting in Seattle to join the SunExpress fleet. The fleet operators in Turkey are awaiting the EASA's announcement to lift the ban, looking forward to return to the skies.

### Reform in the FAA's aircraft certification process

On the day that the FAA ended the 737 MAX's flight ban, the U.S. House unanimously approved legislation that will reform the Federal Aviation Administration's aircraft certification process. This reform intends to ensure a U.S. manufactured aircraft never again crashes due to design issues or regulatory failures. This brings critical changes to the FAA's actions in the certification process of aircraft.

The committee, which took the lead in this radical decision, evaluated the 737 MAX process as a fiasco, explained that the crashes were due to engineering flaws, mismanagement, a severe lack of federal oversight, and heavily criticized Boeing and the FAA for the preventable but not avoided crashes. Dennis Muilenburg, former Boeing CEO, testified before Congress on the plane crashes, and senators accused Boeing of manufacturing "flying coffins". The FAA was believed to have ignored Boeing's mistakes and caused the deaths of people.

Meanwhile, the flight ban lift of on the 737 MAX's has caused a great sense of disappointment and a noted reaction amongst the families of those who lost their lives in the crashes in Ethiopia and Indonesia 🇺🇸



# Timeline :

## A Brief History of Boeing 737 MAX from Maiden Flight to Grounding

**August 30, 2011,**  
Boeing Introduces 737 MAX With Launch of New Aircraft Family

**July 23, 2013,**  
Boeing completed the firm configuration for the 737 MAX 8

**August 13, 2015,**  
The first 737 MAX fuselage rolled off the factory line

**December 8, 2015,**  
The first plane — a 737 MAX 8 named "Spirit of Renton" — was finished

**January 29, 2016,**  
The MAX made its first test flight

**March 8, 2017,**  
MAX gained certification from the FAA

**March 27, 2017,**  
MAX gained certification from the EASA

**April 2017 13,**  
737 MAX 9 first flight

**May 16, 2017,**  
The first 737 8 MAX delivery was made on to Malindo Air

**May 22 2017,**  
The first passenger flight took off on

**March 16, 2018,**  
737 MAX 7 first flight

**March 21, 2018,**  
737 MAX 9 first delivery to Lion Air

**May 2018 —**  
A year after the first delivery — more than 130 MAX planes were in service with 28 different airlines around the world. The MAX had flown almost 42,000 flights in that time, moving about 6.5 million passengers, according to Boeing stats.

**By October 27, 2018,**  
230 of the 737 MAX planes had been delivered to customers around the world.

**On October 29, 2018,**  
Lion Air crash in Jakarta, Indonesia. Twelve minutes into the flight, the plane crashed into the Java Sea, killing all 189 people on board.

**By March 10, 2019,**  
Boeing had delivered 386 of the 737 MAX jets.

**March 10, 2019,**  
Ethiopian Airlines crash in Addis Ababa, Ethiopia. Six minutes after takeoff, the plane slammed into the ground at 700 miles per hour. All 157 people on board were killed.

**March 13, 2019,**  
737 MAX grounded all over the world

**April 2019,**  
Boeing cut production of the plane by 10 units — from 52 to 42 per month

**October 28, 2019,**  
Boeing CEO Dennis Muilenburg testified in front of Congress

**November 11, 2019,**  
Boeing said it completed the first phase of recertification

**November 22, 2019,**  
Boeing unveiled the first MAX 10

**December 23, 2019**  
Boeing CEO Dennis Muilenburg was suspended from his duty

**January 13, 2020,**  
New CEO David Calhoun started

**January 21, 2020,**  
Production at Boeing's Renton, 737 factory was officially halted

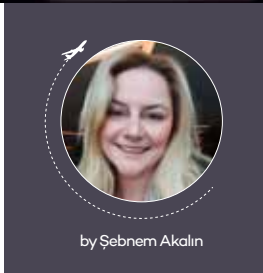
**May 27, 2020**  
Boeing resumes production of 737 MAX

**Between June 29 and July 1, 2020,**  
The FAA and Boeing conducted a series of recertification test flights.

**August 19, 2020,**  
Boeing announced that it had received new orders for the 737 MAX for the first time in 2020 from Poland's Enter Air SA

**November 18, 2020,**  
The FAA announced that the MAX had been cleared to return to service.





by Şebnem Akalın

# Exceptional Widebody Premium Seats Expertly Crafted Into Narrow-body Platforms

**Interview with Emmanuel Regnier, VP of Sales and Marketing for Cabin Interiors at STELIA Aerospace**

**✈️ Mr. Emmanuel Regnier, thank you for your time today. Can you give us some information about STELIA Aerospace?**

**Emmanuel Regnier:** STELIA Aerospace was created in 2015, from the merger of two Airbus companies, Aerolia & Sogerma. Through the latter we have extensive experience in cabin interiors for more than 30 years with prestigious airlines customers, operating both Airbus and Boeing aircraft. Today STELIA Aerospace is one of the world's leading manufacturers for aerostructures, pilot seats and First Class and Business Class passenger seats.

With a turnover of 2.4 billion euros (2.64 billion dollars) the group employs 7,500 employees worldwide, including 4,500 in France and 3,000 in North America, Tunisia, Morocco and Portugal. (figures as of the end of 2019).

**✈️ Some Aerospace companies divide their activities between Boeing and Airbus. Can you tell us how STELIA Aerospace divides activities?**

**Emmanuel Regnier:** For its aerostructures activities, STELIA Aerospace's customers are Airbus, Boeing, Bombardier, ATR and other manufacturers such as Bell, Embraer....

Our First Class and Business Class passenger seats are evenly spread between our Airbus and Boeing airlines customers (more than 50 worldwide)



Mr. Emmanuel Regnier

Finally, for our pilot seats, our customers are Airbus (for the entire aircraft family), as well as some business jets and helicopters.

**✈️ What about your new Business class seat, OPERA? What do you offer your customers with your new business class seats?**

**Emmanuel Regnier:** The OPERA seat brings the best level of comfort that is available today only on the widebody platform to the narrow-body aircraft market, thanks to its reverse herringbone configuration. Among its many innovative features, the seat offers passengers:



© STelia Aerospace



© STelia Aerospace

*A wide and long full-flat bed*

*The full privacy with a fully integrated door in option*

*Direct seat access to all passengers with an enhanced direct view to the window*

*Very large surfaces and stowage capacities*

*Largest screen capability on single-aisle*

**✈️ At present are there any airplane companies that have started to use these seats?**

**Emmanuel Regnier :** The seat is currently in its final phase of qualification and is already present in the Airbus seat catalogue. It retains much attention from different airlines and we should see it flying soon!

Since OPERA is especially designed for the new coming long-haul market on single aisle, we are targeting airlines that are willing to operate 7 to 9 hour flights with single aisle platforms.

The A321XLR is opening new opportunities to airlines, especially for the legacy carriers which will try to offer point to point premium routes in complement to their traditional offer via their hub platforms.

In its current dimensions, the seat fits with all the A320 family platforms.

**✈️ You have partnered with Turkish Airlines in prior years; has Turkish Airlines shown interest in using OPERA seats? Any intentions from Turkish Airlines to perhaps use these seats in business class, are there any negotiations occurring with them?**

**Emmanuel Regnier :** Turkish Airlines is definitely a strong partner for STelia Aerospace but I'm afraid we cannot comment on ongoing discussions with our airline customers....

**✈️ STelia Aerospace was awarded the 'Top Employer' international certification from the Top Employers Institute in 2019 and**

**we also know that STelia Aerospace has strengthened its manufacturing resources and opened an assembly line in Portugal in 2019. What's on the horizon for STelia Aerospace, can you inform us more about your future plans and targets?**

**Emmanuel Regnier :** This is another story.

First, we are very proud to have been awarded Top Employer. This is the result of a combination of various factors including specifically effective, engaging, attractive and inclusive HR policies and practices.

Then, as for any other company in the aeronautical industry, we are strongly and durably hit by the Covid-19 crisis and its sanitary and economic consequences. Therefore, we have no other choice than to face this unprecedented crisis in order to secure our future. This is why, without entering into details, we have set up and

are currently deploying robust action plans in order to firstly adapt our structure to a largely reduced market demand and secondly to recover our competitiveness and get ready for the day when the market demand is back.

**✈️ Would you like to add anything in the way of a message to our readers?**

**Emmanuel Regnier :** Year after year, STelia Aerospace's teams deliver high quality products on time to our customers around the world. Our expertise and proactive approach result in premium seats that enhance passenger comfort as well as meeting high level requirements. From our bespoke first-class options to our luxurious mini-suites, each seat brings its own brand of rest and relaxation to passengers while optimizing cabin layout for maximum revenue efficiency for the airlines 🌟

# Atypical Delivery in the Still of the Night

by Muhammed Yilmaz



Positioned among the elite in the league of global airlines, in 2017 Turkish Airlines moved forward with a decision to procure the Boeing 787 Dreamliner and Airbus 350 airplanes in line with plans of expanding and renewing its fleet with new generation

wide-body passenger aircraft. A memorandum of understanding was signed regarding the Boeing 787 Dreamliner in September 2017 at a ceremony in New York with the participation of President Recep Tayyip Erdoğan.

Later, an important signing ceremony was conducted between Airbus and Turkish Airlines parties at the Elysee Palace in Paris on January 5, 2018. Turkey's President, Recep Tayyip Erdoğan's visit to France upon France's

President Emmanuel Macron's invitation and a ceremony to announce the initiation of Turkish Airlines' procurement negotiations for the Airbus A350-900 was held in the presence of the two heads of state,



where Turkish Airlines President & CEO İlker Aycı and Airbus CEO Tom Enders signed a memorandum of understanding.

According to the agreement signed during this period, the Airbus A350s which enabled a 25% improvement in fuel consumption and harmful

gas emissions, would give THY an advantage in reaching its targets. However, nobody present at the Elysee Palace on that day could have even guessed what the future had in store. Unbeknownst to the world, the tension between the two presidents and two

countries would escalate by the delivery time of the aircraft, and that due to the pandemic the aviation sector would go through turmoil and turbulence so severe, and that these factors would influence the delivery of the aircraft.

The order for the aircraft was finalized at the Turkish Airlines Executive Board Meeting on March 9, 2018. In the public announcement it was declared that 30 aircraft orders would be placed (25 final and 5 optional) for each of the 787 Dreamliner and A350-900 models.

Regarding the delivery of the aircraft, it was stated that both models would be included in the fleet within 6 years; 6 aircraft in 2019, 14 in 2020, 10 aircraft in 2021, 12 in 2022, 11 in 2023 and 7 in 2024.

### **First Dreamliner in the fleet in June 2019, first A350 in march 2020!**

The first 787 Dreamliner of the Turkish Airlines was received at the end of June 2019 and joined the fleet while it was announced that the first A350 would be joining the fleet in March 2020 due to Airbus' busy production slots.

As the COVID-19 pandemic became a hot issue worldwide in mid-February, all stakeholders in the sector started to adopt radical decisions. The airlines began to frequent manufacturers with demands such as cancelling orders or

postponing deliveries. Later manufacturers' production lines were suspended due to quarantine conditions, and new production programs were prepared based on order cancellations and changes.

In light of the projections suggesting that the normalization of the sector would not occur before 2024 after the economic crisis caused by the pandemic, the executives of Turkish Airlines were amongst the airlines that visited Airbus to postpone the delivery of the aircraft, cancelling a part of the orders and changing the orders.

Two A350 aircraft dyed in THY's color scheme with completed test flights were made ready for order and these aircraft regularly appeared in images captured by Spotters in Toulouse. Often upon seeing these aircraft Spotters and curious onlookers would loudly inquire about the delivery date of the aircraft.

Meanwhile, a diplomatic crisis emerged between Turkey and France due to tension in the East Mediterranean and other political factors which added to Turkey's decision on boycotting French goods, and the delivery of the A350s turned into a bit of a fiasco. However, an essential detail missed at this point was that Airbus was a multi-national European Union brand, rather than a product of France. This set the stage for an interesting and unceremonious delivery.



© Turkish Airlines

## The most mysterious delivery in the history of Turkish Airlines!

It was announced that Turkish Airlines would be receiving the first two A350s on October 21st and right in the midst of a diplomatic conundrum. But the delivery of the first A350-900 was accomplished after a 24-hour delay. The TC-LGA registered aircraft took off from Toulouse on October 22nd, at 22:35 p.m. local time and it landed at Istanbul Airport on October 23rd at 02:35 a.m. local time.

The public speculated about the unanticipated delay, especially the recent 24-hour delay in the delivery of the A350s, yet no statements on the issue were made by the management of either Airbus or THY. The number of question marks increased as no special ceremony was conducted for the latest generation passenger aircraft included in THY's fleet and no news appeared in the conventional press, except for some in social media

and on a few websites. Not even an aviation water cannon salute at the airport was held when the first airplane touched down in Istanbul, rather the airplane was rushed in the middle of the night. All these peculiar events went down in THY's aircraft delivery history as one of the most atypical and mysterious deliveries on record.

## Business Class Seats remain unchanged

Turkish Airlines' A350-900 aircraft feature a two-classed cabin configuration with a total of 329 seats composed of 32 Business and 297 Comfort Economy seats. Moreover, the plane was equipped with the latest generation in-flight entertainment system offering HD screens and Wi-Fi connection to present a more pleasant passenger experience during long-distance flights. Passengers were not entirely pleased about the business class seats used by Turkish Airlines in the 787 Dreamliner. Therefore, it was expected that Turkish Airlines would

have used a new type of business class seat in the A350s. However, there were no changes to the business class seats.

Receiving the title of the longest ranged plane in THY's fleet, the A350 XWB features a new aerodynamic design, carbon fiber fuselage and wings as well as new generation fuel-efficient Rolls-Royce Trent XWB engines. Enabling matchless efficiency with a reduction by 25% in fuel consumption and emission, the cabin of the A350 is the quietest one in the twin-aisle aircraft class. And when combined with products for the modern aircraft, this offers the most comfortable flight experience for passengers and the crew. With the 2 new A350s received, the number of Airbus in THY's fleet reached 176.

## Turkish Airlines reaches an agreement with Airbus for postponing deliveries

Turkish Airlines declared a total loss of TRY 5.2 billion in the first 9-month period

of 2020 and a decision was made to decrease the yearly deliveries to "reasonable levels" and to cancel part of the orders if deemed necessary in the negotiations with the investors.

After the launch of operations upon receiving the first 2 A350s, Chief Financial Officer at Turkish Airlines, Murat Şeker declared that they reached an agreement with Airbus for postponing the delivery of new aircraft. According to the new schedule planned based on THY's operational and financial capacities and the conditions stipulated by the agreement, THY's need of US\$ 5.2 billion in financing was delayed until after 2024. The delivery schedule of the aircraft was extended to 2028 with the agreement. There is an order of 69 A321neos and 23 A350-900s waiting for THY to be received from Airbus.

It is said that the signing of a similar agreement by THY and Boeing for postponing the deliveries was quite possible. THY has not yet received the delivery of the 63 737MAXs and the 11 787-9 Dreamliners from Boeing.



## From an Idea to a Product: Airbus A350

Let's take a look at the critical milestones in the transformation of A350 XWBs, included in the Turkish Airlines fleet, and how it progressed from an idea into a product.

When the American manufacturer Boeing announced the development of the 787 Dreamliner model, Airbus did not respond immediately. Then, when the specific features such as the new generation systems of the 787s and the utilization of a high rate of composite material compared to existing airplanes were revealed, the idea of modernizing the A330 emerged for Airbus. This aircraft that could be named as A330 200 Lite might be a rival of Boeing's 787 model with new generation wings and engines.

This suggestion was not quite approved by the potential customers of Airbus. The Farnborough Airshow in 2004 was not efficient for Airbus from this perspective and it became obvious that if they wanted to meet the demands of airlines, they would need to design a new airplane from scratch.

The then CEO of Airbus, Noel Forgeard publicly declared the launch of a new project for the first time on September 16, 2004 yet did not give any details on the activities carried out. It was not clear whether the development activities conducted were for a derived design or a brand-new design. As negative feedback from customers continued, Airbus launched the official start of the new A350 project on

September 30, 2014 by allocating €4 billion, after receiving the EASA Type Certificate.

The new design particularly with a similar fuselage of the A330 featured new wings and horizontal tails in addition to a higher level of the utilization of composite materials, and the methodology of its production had changed. Hence, we faced a brand-new airplane design.

On December 10, 2004, the airplane was named A350 and on June 16, 2005 it was announced that a contract on the order for 60 Airbus A350 XWBs was signed between Qatar Airways and Airbus at the 2005 Paris Airshow.

A development budget of €3.5 billion was allocated for the project on October 6, 2005. A twin-engine

airplane with the capacity of 250-300 passengers was designed in the fuselage of the A330. The wings and engines were going to be redesigned, but instead of the carbon fiber based composite material used in the Boeing 787, the design would be based on the conventional Aluminum-Lithium alloy.

Two versions of Airbus A350 were planned to be built:

- A350-800, in 3-class configuration with 253 passengers and a range of 16,300 km,
- A350-900 in 3-class configuration with 300 passengers and with a range of 13,900 km.

In this way, the new airplane of Airbus would be able to compete both with Boeing's 777 and 787-9.

In July 2006, Airbus once more announced at the



© Airbus

Farnborough Airshow that it had designed an airplane from scratch and that it would name it the A350 XWB (Extra Wide Body). 20 + 20 orders were placed by Singapore Airlines at the fair. The respect for and approval of the A350 were increasing.

The delays in the A380 program in December 2006 affected the A350's destiny a bit negatively. Airbus was suffering a financial bottleneck. It declared a postponement in the delivery of the first A350.

On December 4, 2006, certain new details of the design were announced publicly. New negotiations that were being conducted with the owners of the existing orders due to the increase in cost of the redesigned A350 XWB's.

The alteration in the design of the A350 XWB resulted in an additional two years in the development program. Eventually, the estimated development costs increased from €5.5 billion to almost €10 billion. Airbus declared that the maiden flight

was postponed albeit the date of the initial delivery remained the same. The postponement would be covered by decreasing the test program of the aircraft from 15 months to 12 months.

At a private meeting in September 2007, where nearly 100 existing and potential A350 customers gathered, developments on the design of the new aircraft were presented.

On November 12, 2010, Airbus announced that due to the problems that occurred in the passage to the production stage from the design stage, the date for the first delivery would

be delayed to the end of 2013 from mid-2013.

On December 29, 2011, the first fuselage part of the airplane was shipped to the final assembly line.

On April 5, 2012, the construction and assembly of the first static A350 model began.

The A350 met the skies for the first time on June 14, 2013. Thousands of viewers and Airbus employees witnessed the A350 XWB's maiden flight at Toulouse-Blagnac Airport. The 4-hour flight over the Pyrenees Mountains was performed by an Airbus test team

of six people, each with a parachute system, wearing orange overalls. During most of the tests, the focus was on the wings and landing gears.

The date of the first flight was scheduled for just before the Paris Airshow that would start a few days later. Meanwhile the number of total orders placed for the A350 reached 616 with 50 orders placed by Singapore Airlines.

On June 21, 2013, an airplane was spotted in the skies of the Paris Airshow around 13:30 towards the end of the third test flight. The visitors of the fair at the Le Bourget Airport enthusiastically applauded the A350 XWB and the airplane disappeared among the clouds, the A350 XWB had made an appearance at the most remarkable aviation industry event.

A 5-hour virtual commercial flight was conducted in Hamburg with the A350 on July 29, 2013. 129 passengers, 2 pilots and 8 cabin attendants tested



© Airbus

The world's first-delivered A350-900 aircraft – which was received in December 2014 by Qatar Airways – takes off on its delivery flight from Toulouse, France to Doha, Qatar



boarding, evacuation and regular in-flight activities as part of the flight factor tests.

On 22 December 2014, the first of the A350 XWBs was delivered to launching customer, Qatar Airways. The first commercial flight of the Airbus A350 XWB was conducted from Doha to Frankfurt, on January 15, 2015.

### A350 in 2 models

There are two models of the Airbus A350 XWB, namely the A350-900 and A350-1000.

The A350-900's range is 15,000 km; this airplane capable of carrying 300 to 350 passengers in the 3-class cabin layout is able to fly maximum 440 passengers. Its length is 66.8 meters and wingspan is 64.75 meters. Maximum take-off weight of the plane is 280 tons. Its maximum fuel capacity is 141 thousand liters. Moreover, upon Singapore Airlines' request, an ultra-long version of the A350 (A350ULR - Ultra Long Range) was built. The number of seats was reduced as the fuel capacity and range of the airplane were increased.

The A350-1000's range, on the other hand, is 16,100 km, capable of carrying 350 to 410 passengers in a 3-class cabin layout. The A350-1000 is capable of flying a maximum of 440 passengers. Its length is



© Airbus

nearly 74 meters and has the same 64.75 meter wing-span with the 900 model. Maximum take-off weight of the airplane is 316 tons and its maximum fuel capacity is 159 thousand liters.

### How many orders has the A350 Received?

According to the figures as of October 2020, the A350 model received a total of 930 orders from 50 different customers. Out of this figure, 391 airplanes

were delivered to the customers. 762 of these orders were placed for the A350-900 model; 168 of them were for the A350-1000 model. Delivery of 341 A350-900 models and 50 A350-1000s were accomplished.

When examined, regardless the models Qatar Airways is the biggest A350 customer. The airlines placed an order of 34 for A350-900s and 42 for A350-1000s. The Doha based company received all the orders

placed for A350-900s; 18 of its orders placed for A350-1000s joined the fleet.

The biggest client of the A350-900s is Singapore Airlines. So far, the company has received 52 out of the 67 A350-900s it ordered.

The biggest client of the A350-1000 model is Qatar Airways with an order for 42 planes. 18 of the aircraft were received and are actively conducting flights

Shaping the future of air travel

930 Orders 391 Delivered

A350 XWB

A flexible, high-value Family

All new design delivering unrivalled levels of efficiency

Airspace cabin, perfect space for passengers and airlines

AIRBUS

# Understanding the IMSAFE Checklist and the Dirty Dozen List - Awareness is Critical



Assist. Prof. Dr. Tamer Saraçyakupoğlu  
Mechanical Engineer

On 1<sup>st</sup> June 2009, Marc Dubois, the captain of Air France Flight 447 was recorded on the Cockpit Voice Recorder (CVR) as saying "I didn't sleep enough last night. One hour. It's not enough right now".

AF Flight 447 was a scheduled international passenger flight from Rio de Janeiro, Brazil, to Paris, France. The Airbus A330 serving the flight stalled and couldn't be recovered by pilots, eventually crashing into the Atlantic Ocean at 02:14 UTC. In total, 228 people (216 passengers and 12 crew onboard) lost their lives in the AF Flight 447 accident. Devastatingly, there were no survivors.

In accordance with the crash investigation report; the aircraft crashed after

temporary inconsistencies between the airspeed measurements, -likely because of the aircraft's pitot tubes being obstructed by ice crystals - caused the autopilot to disconnect, after which the crew reacted incorrectly and ultimately caused the aircraft to enter an aerodynamic stall, from which it did not recover. Now it is known that the AF Flight 447 could have been recovered from human factor discipline.

An aircraft accident is almost always the result of a chain of events rather than a single event. For minimizing the accident/incident probability, it is possible to declare that aviation is an industry of checklists. It is possible to find a checklist for almost every single system on an airplane especially for flight operations and maintenance activities. The checklists are periodically reviewed and changed as necessary. For flight operations, there are checklists such as the

walk-around checklist, the engine start-up checklist, the before take-off and after take-off checklist, and many more. The checklist for emergency procedures is generally carried on the knee-boards and/or easy-reachable areas. Other than machines and components there are checklists for humans also. These checklists are regulated for cockpit and cabin crew, for maintenance experts, for dispatchers fitness, and readiness for aerial activities. In an "acrostic" way, the checklist for human resources in the aviation industry is called I'M SAFE. It was initially released by the FAA and rapidly adopted by airliners.

IMSAFE stands for:

**Illness:** *The current or recent illnesses that could affect flight.*

**Medication:** *Any medications are taken that could impair the pilot's ability to fly.*

**Stress:** *Unusual psychological pressure and/or anxiety.*

**Alcohol:** *Any alcohol in the last eight hours.*

**Fatigue:** *Being tired and/or not adequately rested.*

**Emotion:** *Being emotionally upset about anything.*

## Illness

Pilots should have a valid medical certificate for piloting operations. Besides, FAR 61.53 indicates that "If a pilot has or develops a known medical condition that would prevent him from obtaining a medical certificate, he is prohibited from flying as a required crewmember". There is another regulation item in FAR, it is FAR 91.3 which also underlines the illness issues stating that "The pilot in command is directly responsible for the operation of the flight. The pilot alone is responsible for ensuring his own health is up to par before taking the controls".

Conclusionally a pilot in a situation represented in Figure 1 should take his own responsibility for informing the airliner company and seek a doctor consultancy as soon as possible.

## Medication

It is known that almost every medication has some side effects. In this manner, many prescriptions can be dangerous for a pilot in terms of adverse effects for flying. An Aviation Medical Examiner (AME) is an expert who can advise on pilots on physical and psychological effects. In the FAA's safety briefing brochure named "Flight After Use of Medications with Sedating Effects," it is clearly defined that pilots should wait until at least five dosage periods have passed. In other words, if the prescription says to take medication every 4 to 6 hours, pilots should wait until at least 30 hours (5 X 6 Hours) after the last dose before piloting the aircraft (FAA, 2013) As is shown in Figure 2, a pilot should declare themselves "unable to work" if she/he feels any adverse effects of medication.

## Stress

For most of us, stress is a regular part of our daily life. It is claimed by some experts that a little stress might be beneficial for keeping us on our toes. But if it is higher than the average line, then it could adversely affect job performance, especially commercial airliner pilots. Stress is cumulative and it could be either acute (Short-Term) or chronic (Long-Term) like human fatigue (Göker, 2018)

## Alcohol

Alcohol dulls the senses. At high altitudes, it is more effective than at sea level. Another adverse impact of alcohol is dehydrating the body, as concluded in a study regarding "alcohol and altitude relation" conducted by American psychologist R. A. McFarland in the 1930s. This study and many more investigations underline that alcohol does have a more powerful effect on the body at higher elevations. These studies concluded that 2 or 3 drinks taken at a high altitude are equivalent to 4 or 5 drinks taken at sea level. There's a positive correlation between alcohol and altitude.

FAR 91.17 clearly forbids consuming alcohol. It states that; "No person may act or attempt to act as a crewmember of a civil aircraft;

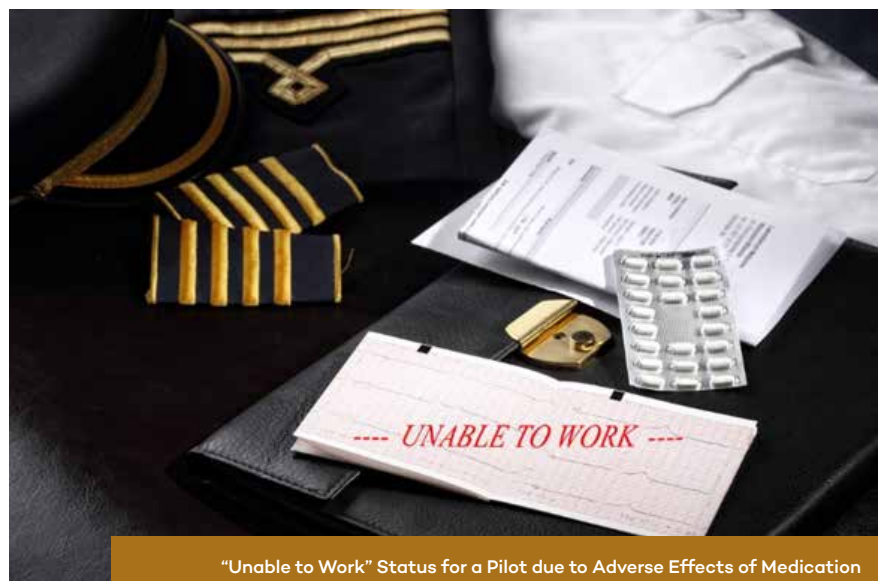


A Pilot in Need of Medical Assistance

- *Within 8 hours after the consumption of any alcoholic beverage,*
- *While under the influence of alcohol,*
- *While using any drug that affects the person's faculties in any way contrary to safety."*

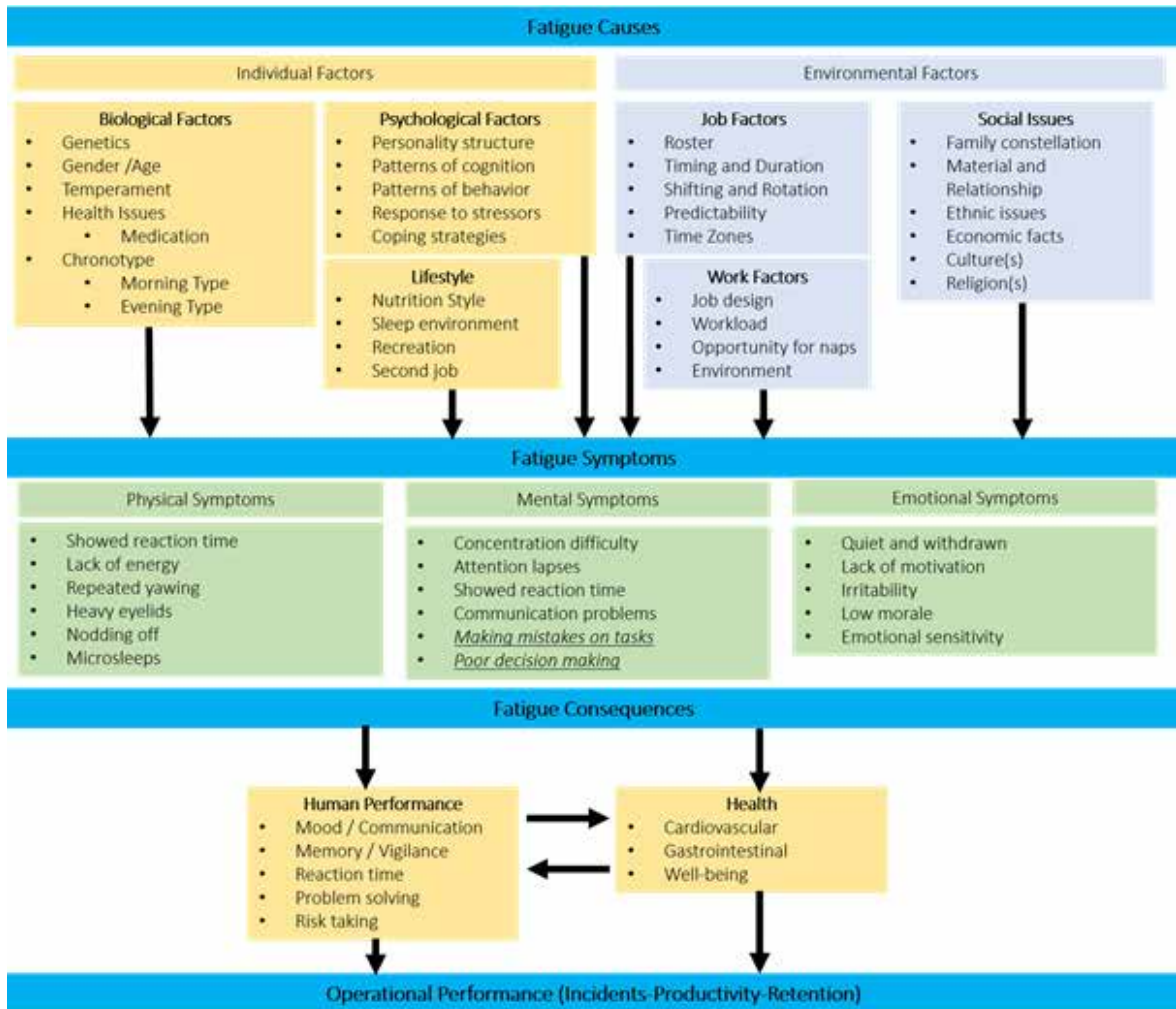
The FAA also recommends 24 hours of pause after consuming alcohol and before sitting behind the yoke/stick. Alcohol avoidance is as critical

as developing a flight plan, a good preflight inspection, obeying ATC procedures, and avoiding severe weather. Ideally, total avoidance of alcohol should be a key element observed by every pilot in planning or accomplishing a flight. Although there's a rule called "8 hours from bottle to throttle" many airlines have a more stringent 12 hour time limit.



"Unable to Work" Status for a Pilot due to Adverse Effects of Medication

# RISK MANAGEMENT



## Fatigue

Undoubtedly piloting tasks require higher-order intellectual processing and further-focusing abilities. On the other hand, fatigue is a crucial and cumulative factor for aviation safety causing human errors via a decrease in the abilities to conduct these tasks.

Factors that cause human fatigue can be provided as follow;

- *Sleep deprivation,*
- *Circadian rhythm abnormalities,*

• *Health-related tiredness,*

• *Task-induced influences*

These adverse effects may include significant degradation in;

- *Decision-making skills,*
- *Memory sharpness,*
- *Judgment proficiency,*
- *Reaction time*
- *Situational awareness in aerial operations.*

Literally, the factors provided above could lead to accidents. (Bendac etc, 2020)

The chronic form of fatigue is more insidious and subjective. Factors causing fatigue are lack of sleep, crew scheduling, a long duty period, Jet or shift lag, high workload, and lacking physical or mental fitness. There are subjective and objective measurements to estimate fatigue levels. Figure 3 shows the causes, symptoms, and consequences of fatigue.

Subjective techniques are based on self-report of sleep and tiredness whereas objective interventions are

built on the basis of the physiological features of the subject (Brain waves, Eye gaze, Facial feature recognition) or their physical manifestations (Muscle tone, Wrist inactivity, Head orientation). Fatigue measurements aim to support and maintain alertness and performance during a long or uneventful duty period. Fatigue countermeasures are mainly based on self-reported data and there is a need for a "safety" factor for self-reports (Göker, 2018)

## Emotion

Unlike commercial drivers, who can pull over at a rest stop if they feel uncomfortable and fatigue is setting in, commercial pilots cannot pull over at a convenient rest stop such as on the nearest cloud.

Albeit pilots are generally known as calm, stoic, and patient but they are also human and are affected by environmental and social conditions. It should always be kept in mind that emotions stay deep and surface under stress or pressure. In some safety research, it is stated that "pupil-based parameters are sensitive to emotion, and pupil changes are associated with motivation, distress, and drowsiness". It is noteworthy to say that there is a correlation between physiological features and emotional appearances.

## Conclusion

The ICAO and IATA Fatigue Risk Management Technical Group have been studying Extending Flight and Duty Limits for COVID-19.

It is visible that during Covid days many jobs have been negatively affected by working conditions. In that manner, the ICAO has warned pilots in terms of the elements of the Dirty

Dozen. The ICAO warnings about COVID-19 risks in terms of the Dirty Dozen are briefly summarized below:

### • Lack of Communication

*Inadequate/ ineffective communication of new rules, SOPs from regulator or airline management or the operators*

*Habit interference - interferes with actions taken, ie automatically shaking hands, touching controls, etc.*

### • Complacency

*Lockdown has changed the way we live, for weeks to months at a time.*

*Time management and priorities have shifted and a refocus could take time.*

*Overconfidence and under confidence both need to be avoided.*

### • Lack of Knowledge

*A lot has changed with COVID-19 still around. Airport procedures, passenger screening, first aid and CPR guidelines, cockpit disinfection, checklists, management of passenger illness on board, international rules, etc. – it's a lot of unlearning and new learning. It takes a while for the new information and procedures to become a habit. While fear is not required, awareness and alertness is a must.*

### • Distractions

*Changes in living patterns in recent weeks, a sick or unattended family member, increased procedures,*

*new protocols, and return to flying after a gap are all distractors. Since new systems take time to be seamlessly established; and the dynamics of the problems may call for further changes, one needs to be mindful, agile, and focused.*

### • Lack of Teamwork

*The dynamics of the situation are such that everyone is still learning and coping.*

### • Fatigue

*Readjusting to time zones and flying schedules after such a significant break could be difficult initially. Obesity, lack of exercise, alcohol, and relearning of tasks can also lead to easy physical and mental fatigue.*

### • Lack of Resources

*Financial trouble may leave companies with fewer people to do more work. Social distancing may allow for less personal interactions. Constant screening, protection, and disinfection measures may burden existing resources thus leading to some gaps in the system.*

### • Pressure

*Relief flights, flying only specific routes, fear of contracting the virus, restricted movements during layovers, reduced number of crew, CRM, having a potential carrier or COVID-19 patient on-board are all additional pressures while flying.*

### • Lack of Assertiveness

*Everyone is dealing with a new physical and mental situation. Some procedures are longer,*

*some digital, and some with more restrictions. It may take time to familiarize and adapt.*

### • Stress

*Financial losses, the anxiety of going back to the family after a flight, anger, lack of control, frustration, resentment, lack of confidence, the uncertainty of the future and return to 'normalcy', illness or death of a loved one, a child who has yet to resume schooling or exams, the need to earn, living your passion of flying during such trying times and safety of self and others – all add to the stress.*

*New ways of living at home, at work, and in society.*

*Wearing PPE suits while flying, required COVID-19 tests, hotel stays pre- and post-flights and layover, restricted activities during hotel stay including food.*

*Social distancing is the new norm and has caused a distance between us and impacts our happiness.*

### • Lack of Awareness

*Guidelines are changing often, employers may have to change protocols as per national and international requirements and lessons learned after resuming operations. It is imperative for everyone to be aware of the risks and to know what is expected of them.*

### • Norms

*In the COVID-19 era, safety has an enhanced definition. The goal is Flight safety while maintaining personal safety (ICAO, 2020).*

# Theodore von Karman's Visit to Turkey in 1955 and Its Reflections on Local Press - Part 2



by Dr. Emir Öngüner  
Freelance Researcher in  
Aviation History

Based on the first part published in the previous edition, we are progressing with introducing the newspapers reporting of Theodore von Karman's visit to Turkey in 1955 in chronologic order.<sup>1</sup>

As a guest of the Turkish government von Karman arrived in Ankara on the 9th of January with his staff, met the officials and discussed national defense issues of Turkey. Later he gave a guest lecture at Istanbul Technical University, where he received an honorary doctorate degree, and discussed the progress in aerospace research with Turkish scientists. In one of the interviews, he even claimed that the Turks used to invent rocket technology in previous centuries. The significant questions of the reporters were on the disasters of jet fighters and the scientific collaboration of NATO countries. He also visited the new wind tunnel facility in Ankara, which was apparently under construction at that time, and insisted

to include it into actual research activities as soon as possible.

The second part of this investigation contains related Turkish newspaper articles from the 13<sup>th</sup> and 14<sup>th</sup> of January 1955.

## Hürriyet, 13.01.1955

**The father of modern aeronautics is in our city: Prof. von Karman who said "Planes are approaching missile speed" will deliver a lecture today at the Technical University**

Prof. Theodore von Karman who is known

as "the father of modern aeronautics" and his staff arrived in our city after his conference with the members of the Scientific Advisory Committee to National Defense Ministry. Prof. von Karman's visit is interpreted by related circles as a very important factor in the future of the Turkish aircraft industry.

### How to overcome airplane disasters

"The father of modern aeronautics" who is originally Hungarian and went to the United States in 1926 and then became a U.S. citizen, said the following when he was

about airplane disasters throughout the world: "When Stevenson invented the locomotive he named it rocket and for safety he made a signal officer run in front of the engine. Today, hundreds of years after its invention, we find a tremendous development and improvement in locomotives. Airplanes are the same. As soon as our knowledge about them is complete, the number of airplane disasters will also decrease".

### The reason for jet disasters

When he was reminded of frequent jet disasters in the Turkish Air Force and other countries, Prof. von Karman added "First of all, the number of jet disasters is decreasing as our technical and especially experimental knowledge is increasing. These disasters are also frequent in the United States and other NATO countries. One of the reasons for these disasters might be material failure. As you may know, jet planes require high temperature resistant materials".



Cumhuriyet, 13.01.1955: In the Future a Tremendous Underground Air Base Will Be Constructed in Turkey

<sup>1</sup> Cal Tech Archives, von Karman Collections, TVK 156.11, TVK 156.12: Articles Which Appeared In Turkish Press During Dr. Theodore von Karman's Visit to Turkey

Some minor changes are applied into the text by author. The original archive file does not contain the sub-article "The Aerodynamic Facility in Ankara" in Cumhuriyet, 13.01.1955. This part is added by the author.

### Concerning missile speed

The American scientist has indicated the prominent future of the aircraft industry, the vast progress in the technical point of view, and also said that flights beyond sonic speed have created social problems such as the disturbing effects of pressure waves and noise. At present several scientists are working on these problems. Today Prof. von Karman will deliver a lecture on rockets at the Technical University at 5:30 p.m.

### Cumhuriyet, 13.01.1955

In the future a tremendous underground air base will be constructed in Turkey

It is believed that American Aviation Pioneer Dr. von Karman Has discussed this topic in Ankara

Prof. Theodore von Karman who is a worldwide authority in rockets and guided missiles, Chairman of AGARD and Chairman of the Research and Development office of NATO arrived in our city yesterday from Ankara at 3:30 p.m. with a staff of five persons.

Prof. von Karman was met by General Kazım Demirkan at Yeşilköy Airfield when some newspaper men questioned him, he said: "Someday flying saucers and cigars might be a reality". His opinion in this respect is quite interesting since he has vast knowledge on this topic. Prof. von Karman who is the inventor of jet planes indicated that he is interested in everything that flies and said:

"Today flying saucers and cigars are considered as a topic in psychology and there is no scientific explanation yet. These

might be the reflections of the sun's rays from the ionosphere, unclaimed radar or observation balloons, or perhaps optical illusions or fantasies of the wind. But the claimed theories are very incomplete and unproven. I do not think that these are secret weapons of the United States or Soviet Russia as it was rumored by a French newspaper."

On the other hand, according to rumors in the Turkish and American circles, Prof. von Karman came to Turkey to discuss the problem of the construction of a very large underground air base for planes carrying hydrogen and atomic bombs. This underground base will increase the strategic importance of Turkey in the NATO chain, since this base will be very close to Soviet Russian industrial centers. And it will also be out of danger from being destroyed by the largest bombs.

As you may recall, it was discussed in the recent NATO meeting that this organization will consider the use of atom and hydrogen bombs in case of aggression from the USSR. Although Prof. von

Karman has avoided making any comment regarding the construction of this underground air base, it is persistently rumored that he and Ethem Menderes, the Minister of National Defense, have discussed this problem in Ankara.

Prof. von Karman and his staff will leave for Paris tomorrow at 10 a.m. in a private plane.

### The wind tunnel facility in Ankara

Prior to his departure to Istanbul, Theodore von Karman, the Chairman of the Advisory Group for Aeronautical Research and Development of the United States Air Joint Chiefs of Staff and Chairman of the Aeronautical Research and Development of NATO, made a visit at 9.30 a.m. to the aerodynamic test facility which is currently constructed on the plot between Gazi Teacher's College and the Faculty of Science of Ankara University, among the visitors were Engr. Col. Dane, Engr. Col. Fuat Uluğ and engineer Turgut Özkan. During visit which lasted over 2 hours, Dr. von Karman made some inspections and suggested to complete the construction and make the wind tunnel operational as soon as possible. He also explained the necessity of developing this facility into an important research center and introduced his willingness to provide any kind of support by related authorities.

Ankarada Aero dinamik rüzgâr tünelli  
Ankara 12 (s.a.) — Amerika Birleşik Devletleri hava erkânı harbiyel umumiye risayeti ilmi isti-yare kuru ve ATO havacılık araşturma ve geliştirme grubu başkanı Theodre Von Karman İstanbula hareketinden önce bugün saat 9,30 da beraberinde albay yüksek mühendis Dane, albay yüksek mühendis Fuad Uluğ ve yüksek mühendis Turgud Özkan olduğu halde Gazi Eğitim Enstitüsü ile Ankara Fen Fakültesi arasında inşa edilmekte bulunan aero dinamik rüzgâr tünelli gezmıştır.  
İki saatten fazla bu tesiste tetkikler yapan Dr. Theodre Von Karman tesisin bir an evvel ikmal edilerek çalıştırılmasının çok yerinde olacağını, bu hususta gerekli kanallardan ner türlü yardımların yapılmasının kabil olacağını ve bu tesisin mütevazi ve faakt çok önemli bir araştırma merkezi haline getirilmesi lüzumunu ifade ve bilhassa tavsiye etmiştir.

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Cumhuriyet, 13.01.1955: The Aerodynamic Facility in Ankara

**Hürriyet,  
14.01.1955**

**According to Professor  
Th. von Karman Turks  
Invented Rocket Systems**

Yesterday, during his lecture at the Technical University in front of an audience of 1,500 the father of modern aerodynamics and the inventor of jet planes, Professor Theodore von Karman said that Turks used rocket systems in the 13th century for the first time in history.

The great scientist showed a picture of an arrow propelled by gun powder which was taken from an old Turkish Weapon's book; on the picture there was Arabic script. The propellant was located at the tip of the arrow. Professor Karman indicated that the propellant might have been used for purposes of both propulsion and setting the target on fire.

***The Rocket of Hasan Çelebi contained gun powder***

From the lecture it is deduced that after the 13th century the Poles had also worked on rockets. During the years 1620-1630 a Turk named Hasan Çelebi made a rocket using black gun powder. The rocket of Hasan Çelebi contained about 70 kg of black gun powder. With regards to the rocket of Hasan Çelebi, Prof. Karman said:



"The interesting part of the whole situation is the fact that the person who built the rocket also tried to fly with it" and he continued "after the year of invention, rockets were used effectively as a weapon from the year 1865 and on. During the First World War rockets were used but not very effectively. They were used as anti-aircraft weapons during the Second World War, as by this time their production cost was low enough. Rockets were used before and during the Pacific landings."

***Concerning Nuclear Rockets***

Prof. Karman also indicated that today's rockets are propelled by either liquid or solid propellants; however, in the years to come it is imaginable that rockets

will utilize propulsion by means of nuclear power.

Prof. Karman and his staff will take off by plane for Rome this morning.

**Yeni İstanbul,  
14.01.1955**

**In In Ankara new and important decisions are made in regard to our air defense**

**Prof. Theodore von Karman said that the news about the construction of "Underground air bases" is nothing but pure imagination**

Yesterday Prof. Theodore von Karman, Chairman of the Advisory Committee for Research and Development to the United States Air Forces Joint Chiefs of Staff, delivered a lecture at the Technical University. On the other hand there was a rumor

in one of the Istanbul morning newspapers that the visit of Prof. Theodore von Karman, who is the guest of the Ministry of National Defense, is related to the construction project of the secret underground air bases for airplanes carrying atom and hydrogen bombs. In regard to this rumor, when information was requested, Prof. von Karman said the following: "This is completely untrue and unsound news and the project of this category is pure imagination and ridiculous".

***The content of the lecture of Prof. von Karman:***

Yesterday at 5:30 p.m. Dr. von Karman delivered a lecture on the subject of "Problems in Rocket Combustion" at Istanbul Technical University. Prof. von Karman, who indicated that rockets are the oldest and the simplest means of propulsion, said:

"Rockets are the oldest, because they were used as early as the 13th century. They are the simplest because there is no need for their propulsion".

Dr. von Karman also indicated that the Turks used arrows propelled by the same principle during those days and he highlighted his point by the pictures in an old Turkish book written in Arabic. The Professor also said that during the reign



of Emperor Murat IV, Hasan Çelebi actually built rockets.

After the lecture Prof. von Karman said to one of our friends the following: "I have come from Paris as a guest of your government. I have come in contact with officials in Ankara. There were very important decisions made with regard to defense problems. The success of joint military and scientific work will depend on the outcome of these decisions. From now on I think there will be frequent occasions for me to visit your country. I like very much your language and food. I am going back to Paris tomorrow".

Prof. von Karman went to the United States in 1930 and became the Director of the Guggenheim Laboratory at the California Institute of Technology. For 19 years he worked on very important research there. He is especially famous for his work on supersonic speed. In 1951 he was appointed to his post in NATO and settled in Paris.

After his lecture the Professor received an honorary degree "Doctor Honoris Causa" during a ceremony in his honor at the university. Prof. von Karman, whose scientific and technical contributions are well known the world over, indicated his gratitude and promised his personal help to the students who are seriously interested in studying in the United States. After the ceremony, a cocktail party was held and Prof. von Karman met various faculty members 🗨️



**Milliyet 14.01.1955**

**The inventors of rockets are 13th century Turks**

The chairman of the NATO AGARD, Theodore Von Karman, claims that the arrow used by the Turks is the most primitive form of jet planes.

Speaking at a conference held at the Technical University yesterday, the chairman of the NATO Advisory Group for Aerospace Research and Development Prof. Dr. Theodore Von Karman, who was in our country as a guest of the Ministry of National Defense, explained the history of rockets and said the following: "A kind of arrow, which was among the weapons of the Turkish Army in the 13th century and used to start fires, can be considered as the most primitive form of today's jet aircraft. According to the literature we have, rockets were developed and used later during the reign of Murad IV. These rockets were powered by 70 kilograms of gunpowder and consist

of seven turbines. It is believed that they were invented by a Turk named Hasan Çelebi, and he even made demonstrations by riding these rockets from time to time."

**Inventor of rockets**

Professor Karman subsequently gave scientific explanation about jet planes by mentioning the development of rockets until today.

The conference was followed with great interest by the Governor, the commander of the 1st Army, generals, admirals, high-ranking officers, professors, and a large group of students.

Professor Theodor von Karman also met with Governor Gökay yesterday morning to discuss the positive scientific progress and psychological research in Turkey.



## Better Late than Never: Identifying the Language Learning Needs of Pilots



by Gökhan Demirdöken,  
Researcher & English  
Language Instructor

The COVID-19 pandemic has had a devastating impact on many industries. Yet, the aviation industry has suffered considerably more than any other industry due to travel restrictions both on the local and global scale. As the pandemic spread around the world, the decrease in flight operations hit an all-time record with around 80% of flights cancelled. Although, the industry seems to have warmed up to a small extent with some economic relief packages delivered by a number of governments and the increase in the demand on cargo operations, the IATA still foresees that global airline revenue in 2021 will decline

by 46% compared to 2019. In light of the existing impact of COVID-19, it can be argued that, in the long run, we are still far away from beginning to see daylight even after all of this suffering. Amid such fuzziness, pessimistic expectations, and recovery concerns, the IATA, airline companies, and pilots' associations around the world still seek answers for the issue of sustainable refresher training programs. In fact, the real problem is not when and how to recover from the impacts of COVID-19 pandemic; rather it appears now to be how to ensure the safest flight operations as soon as possible. In that case, a thorough assessment of

pilots' needs has surfaced as a life saver for the aviation industry.

The instrumentation of comprehensive needs analysis studies for a faster recovery and orientation is of utmost importance for both currently employed and for those who were laid off due to the COVID-19 pandemic. The latest figures show that the number of flights after the outbreak of COVID-19 has reduced to 23.1 million, which was around 40 million flights in 2019. What's more the number of active working pilots was around 315,00 whereas it now has significantly reduced over the last

few months. Norwegian is known to have laid off 1,570 pilots; Delta Air Lines has furloughed 1,941 pilots recently and Finnair with around 1,000 furloughs; and recently Etihad dismissed 400 pilots. However, the aviation industry will eventually need these pilots. Therefore, airline companies cannot just assign homework or the pilots cannot be simply asked to work and practice at home.

Being a pilot requires both personal investment such as time, effort, and motivation, and financial investment. However, the ultimate attainment of getting your pilot's license

is just the beginning of your journey. Similar to the take-off and touch-down of the aircraft under your control, you encounter several ups and downs in your career as a pilot. No matter what you fly, a single-prop TBM 900 or the latest generation Boeing 787s and Airbus 350s, the foremost prerequisite you need to meet is, for sure, the flight time and type rating. That's what matters for a pilot. Therefore, learning how to fly resembles learning a second language in a number of ways. First, the extent to which second language learners are exposed to meaningful input in the target language affects the degree of proficiency. Also, if you keep close relations to the target language-speaking communities, you are more likely to develop better in that language when compared to those who prefer to keep their distance from the target community. Similarly, the more you fly, the more learn. In this sense, depriving pilots of their foremost need to fly and practice may result in the decrease of flying skill. Another similarity is that both skills require some sort of drills. This may include grammar drills for second language learners to have better control of linguistic features; whereas the drills for a pilot may include walk-



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around checks, pre-flight checklists, emergency response plans, etc. Finally, second language learning and learning how to fly are similar in terms of aptitude to perform the desired actions in the target situation. A pilot is expected to have advanced motor and cognitive skills, and the aptitude to control a plane; second language learners, also, are expected to have the aptitude to apply various learning styles to be a more proficient user of the target language. In a nutshell, it would be a great mistake to expect people to develop these two namely different yet conceptually similar skills on their own. Therefore, the burden is on the shoulders of policy makers, civil aviation authorities, and airline companies to come up with sustainable refresher training programs for a

faster recovery of the airline industry. So, what has been done so far? And, what can be done in the near future?

To come up with meaningful answers to these questions, it is a must to define what is meant by the word "need". Oxford dictionary defines it as a situation when something is necessary or must be done. On the other hand, from a scientific perspective, it refers to the requirements of the target situation. To be more clear, it can be further divided into three: lacks, wants, and necessities (see, Hutchinson & Waters, 1987, English for Specific Purposes: A Learning Centered Approach). In the case of aviation, while necessities refer to what pilots must know to be able to practice their profession in the target situation, wants

refer to what they feel as necessary for the same purpose, and lacks refer to the gap between what they already know and what they must know in the end.

Having established the foundation of pilots' needs, now is the time to move on with latest local and global developments in terms of need analysis assessment. To begin with the local scale, it has been proposed that listening comprehension and speaking are the most significant areas in which pilots need to develop themselves. In this sense, Turkish Airlines offers an Introduction to Aviation English course to pilots. Although, this seems to be a hybrid course including both e-learning and classroom instruction, it is limited in its scope. The overall course outline includes aviation

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alphabet and numbers, parts of an aircraft and cockpit, how does an aircraft fly, concept of speed, pre-flight briefing and monitoring a sterile cockpit, walk around, and finally radiotelephony. Moreover, such a course is offered by Turkish Airlines Aviation Academy, thus the share of Aviation English in refresher training programs, if any, is not within our knowledge yet. Similarly, Pegasus Airlines, one of the most frequent-flying low-cost carriers in Turkey, offers Pilot Training programs for prospective pilots. However, there is no sign of Aviation English courses in their curricula; rather language proficiency is a must-have prerequisite to apply for this program, which contradicts with the fact that language learning does not happen at once; rather it happens in a continuum. For these reasons, it can be concluded that the present state of Aviation English learning opportunities is limited. Even worse, there exists no future plan to be implemented by local authorities or airline companies towards meeting the needs of pilots in Turkey.

Disregarding such needs may pose a big threat on the safety of flight operations in Turkey once the so-called new normal is on. Needless to say, the



fatal consequences of lack of English language proficiency on aviation have been witnessed many times in history. As a matter of fact, the official report on the latest incident of Pegasus Airlines in 2020 was partially due to linguistic restrictions of those involved in radiotelephony communication. That's why, it should always be borne in mind that any comeback in the aviation industry in terms of the number of passenger flight operations will definitely require pilots with effective communication skills in English; thus, making Aviation English a part of refresher training programs must be the top priority of civil aviation authorities and airline companies for safer flight operations during the new normal.

On the other hand, the analysis of pilots' needs for a safe and speedy recovery of the industry will find its way on a global scale, if it's not on the local scale yet. In one of such recent attempts, a joint webinar by the IATA, ICAO, and IFALPA was held focusing on managing pilot training and licensing during the COVID-19 pandemic. The objectives of the webinar were to present what had been done to maintain operations in terms of pilot training and licensing, and to discuss the challenges and possible solutions for a recovery. Although, the latter is not the interest of this article, the first issue offers great insights into the issue of a possible decrease in English communication and flying skills of pilots during worldwide lockdowns due to the COVID-19 pandemic.

The implementation of alleviations to the Standards of ICAO Annexes was one of the initial interim measures established to support continued operations during COVID-19. This means several exemptions for pilots including licenses, medical certificates, recency, recurrent training, and language proficiency. For the time being, such exemptions will be in force until March 31, 2021. When analyzed from the perspective of pilots, these exemptions seem to be a real relief. However, providing pilots with such exemptions has some significant drawbacks. First, the joint webinar suggested pilots refresh their knowledge through books and online courses. Yet, as mentioned earlier, piloting an aircraft safely cannot be limited only

to having good ‘control’ or knowledge from the pilots’ handbook of aeronautical knowledge, aircraft flight manuals (AFMs), instrument flying handbooks, and aeronautical information manuals; rather, such theoretical refreshments need to be backed up with hands-on training. Although, the implemented exemptions provided relief for pilots on a great number of issues, no step has been taken yet towards providing pilots with practical solutions on one of the most important issues in the event of the return to normal flight operations: fitness to fly.

Another drawback of the proposed exemptions for pilots was the extension of the validity of pilot licenses until March 31, 2021. This means that pilots would be away from the flight-deck for some more time in the near future. As we are about to welcome 2021 and there is no reason to set forth any time for a return to normal flight operations, this exemption can be even further extended. However, the renewal and revalidation of Instrument Rating (IR) can be a great challenge for pilots due to having become distanced from the flight-deck. The revalidation process of IR would be normally completed in a Flight Navigation Procedures Trainers (FNTP) II simulator;



whereas the class rating cannot be revalidated in a simulator. Similarly, upon the expiration of IR, pilots are required to renew it in an aircraft. Such requirements have two consequences for pilots. First, even if the exemptions for pilot licensing is further extended, pilots will still need to practice until the due date for the renewal and revalidation. However, the burden of funding for training both on EASA approved flight simulators and in an aircraft will still be on the shoulders of pilots. Second, the nature of simulating real-life flying scenarios in a simulator requires being physically present in the simulation centers. This, however, poses health risks for pilots, which may even have more tragic consequences. Hence, aviation authorities need to come up with

sustainable solutions for such issues by taking the needs of pilots into consideration.

Apart from pilots’ needs during the COVID-19 pandemic, their ongoing needs in terms of training should also be taken into consideration carefully for safer flight operations. A number of attempts have been made to analyze what pilots require in the target situation to best practice their profession. For instance, in Korea, where the aviation industry showed a steady increase within the last couple of years and the number of pilots was around 2,500 as of December 2019, approximately 27 million people traveled by plane and preferred Korean Air. However, ensuring the safety of its passengers without effective pilot training programs would

have definitely been quite challenging for the flag carrier of South Korea. What’s more, when coupled and backed up with scientific research, it turned out to be the perfect match for their pilots’ needs. The initial analysis of pilots’ needs in Korea had yielded the following implications: The considerably more experienced pilots were not in need of English language training. On the other hand, language proficiency requirements of the ICAO were challenging in terms of fluency, comprehension, and vocabulary. Also, Korean pilots preferred native English-speaking teachers in their classes (see Shin & Kim, 2005 for more detail). These findings have quite significant implications for the aviation industry for various reasons.

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First of all, working in the aviation industry, which probably benefited more from the effects of globalization than any other industry, requires having good communication skills in English as lingua franca. This becomes even more important for pilots during flight operations. However, their ongoing need to learn and practice English language have turned out to be a source of business around the world. On the one hand, cadet pilots try to do their best in Aviation English courses but their attempts usually result in either a total failure to learn English or attainment of proficiency in English only to a limited extent. On the other hand, the already employed pilots are not offered any kind of training to practice English in cases like lay-offs. Once they return to work, they are likely to encounter linguistic challenges. If such needs are not taken into consideration seriously, both the prospective pilots and those who have been laid-off recently will end up in complete failure to perform effectively in the target situation.

Second, no matter how experienced you are as a pilot, your flying skill will not help you in all cases. The best yet the most tragic example to such a scenario was the Tenerife Disaster, in which a misunderstanding between pilots and air traffic controller resulted



in a complete tragedy. That's why pilots' needs in terms of English language proficiency are usually the same for all aviators who learn English as their second language. In an attempt to assess the needs of cadet pilots in Turkey, similar conclusions have been made. Listening comprehension was one of the two most challenging areas for Turkish cadet pilots. This can be associated with the fact that they are not exposed to authentic listening materials until they take Aviation English courses. Even if they take such courses, it is still quite challenging for them to develop listening skills as the institutions do not allocate enough time for it in their curricula. The conditions are even worse in tertiary level Aviation programs. Although the number of academic programs has burst in the

last few years significantly, there exist two drawbacks to be worked up. First and most importantly, these institutions lack qualified teachers to offer Aviation English courses. Another reason is that the curricula of these pilotage programs unfortunately lack compulsory Aviation English courses. In fact, the latter is closely related to the first issue. However, there is no effort so far to implement teacher training programs for Aviation English courses. Therefore, listening comprehension, the first area in which cadet pilots in Turkey need to develop themselves, is and will be the bleeding wound of aviation in Turkey.

Following the first area of need, speaking appears to be the second most important need. The underlying reasons for speaking in English being a challenge for cadet pilots

are sociocultural matters in Turkey. Although Turkey is an ethnically diverse country, the nationalist point of view towards English is still existent in many regions of Turkey. That results in no reason for the development of intrinsic or extrinsic motivation for second language learners in Turkey. Furthermore, they do not look for opportunities to develop close relations with limited number of English-speaking communities in the Turkey. Consequently, only those who manage to find a way to learn English at an early age thanks to their determined English teachers or the parental support can get the opportunity to attain higher degrees of English language competency. On the other hand, the others who never attempted to learn or who started to learn English later in their

life after deciding to be a pilot fail to attain a high degree of speaking skill because it becomes significantly more difficult for the second group to process information after a certain age. To put it in a nutshell, although General English and Aviation English are quite different subjects in essence, learning English as a second language and learning Aviation English in Turkey are strongly correlated in that it becomes easier for proficient users of English to learn Aviation English more easily and smoothly whereas it is difficult to claim that learning Aviation English is a similar experience for those who did not have any prior knowledge

of English. That's why providing sustainable solutions on a local scale for the growth of the aviation industry, national authorities including the Ministry of Education and the Ministry of Transport and Infrastructure should cooperate and handle such needs of pilots with care.

At the end of the day, the last questions to seek answers to here are, what can be done to meet the needs of pilots on a global scale? As is proposed in the theory of the big bang, everything just started with a big bang. Similarly, the ever-popular issue of the COVID-19 pandemic all started with a kind of big bang in Wuhan, China in 2019. However, nobody was well-prepared for

such a global phenomenon in terms of managing the human resources and there seemed to be no emergency action plan. This resulted in temporary lay-offs and permanent termination of contracts in the aviation industry. On the other hand, there hopefully exists a brighter future with the increased safety measures and the proliferation of COVID-19 vaccines. In this sense, it is important to develop a sustainable action plan for a return to normal flight operations. This must include refresher training programs as well as language courses for pilots. With the latest developments in technology, there is a number of Web 2.0 tools and online platforms for

learners of English and other languages to both learn and practice the target language with their counterparts. Similarly, there exists several software to assist learners of Aviation English online. However, the integration of such tools and software into training programs to be offered by airline companies should be completed before it is too late. To do so, a comprehensive needs analysis questionnaire should be conducted with as many pilots as possible and their felt needs should be identified. This would contribute significantly to safer flight operations during the new normal. As always, better late than never ✈️





# Berlin Brandenburg Airport 'Ready for Take-off' After a 9-Year Delay

by Muhammed Yilmaz

Constructed in Berlin, the capital of Germany, Brandenburg Airport opened its doors on October 31, 2020, nine years after its first planned opening date. Airbus A320neo, owned by easyJet, was the first aircraft that landed at the airport. Normally, two A320neos owned by Lufthansa and easyJet were scheduled to perform parallel landing simultaneously. However, this was not possible due to negative weather conditions. The planes had to land one after another on the same runway.

This meteorological misfortune was regarded as normal, pale beside what has happened since the outset of the Brandenburg Airport project. Let's take a closer look at the Brandenburg Airport project, which has become a dent in Germany's global reputation for efficiency.

## How was the Brandenburg Airport Project decided?

There were 3 airports in Berlin, the capital of Germany, which was reunited with the fall of the Berlin wall on June 13, 1990. Two of the airports, Tegel and Tempelhof, are located in the former West Germany, and the other, Schönefeld, in the southeast of former East Germany.

In 1992, it was decided that to have a single airport in the city in order to better manage the air traffic. The new airport would be built and opened, and the others would be closed.

After nearly 15 years of planning, the construction work of the new airport began in 2006 on the land alongside Schönefeld Airport, with the idea of cost saving by making use of the existing runways

and other infrastructures. So, in the beginning everything was quite different compared to today.

The airport construction has become an unfortunate dent in Germany's renowned engineering excellence and diligence. The wonderful unique airport project to be built in the capital turned out being a long-winded story, and this project, closely followed all around the world, has become a source of embarrassment for the Germans.

## The opening of the Airport was postponed 6 times

The opening date for Brandenburg Airport was first announced as October 2011. However, due to numerous setbacks, the opening date was updated as June 2012, March 2013, October

2013, June 2017 and finally October 2020.

In the announcement stating that the opening date was updated as October 2020, it was also reported that an additional budget of €1 billion was required for the project completion. The total cost of the project, which started in 2006 with an initial budget of €2.83 billion, exceeded €7 billion. Lufthansa Board Member Thorsten Dirks hit the right note summarizing the German mood of that day: "This airport will probably never open!"

During such postponements made one after another, the idea of making Brandenburg the single airport of Berlin was abandoned. Because the traffic, increased by fast-growing carriers such as the city's biggest player, easyJet, had grown faster than expected, especially in the last few years, in double digits. Tegel and





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Schönefeld, two airports in Berlin, served a total of 33.3 million passengers in 2017. Brandenburg's annual passenger capacity was initially projected around 34 million. While we were wondering how Brandenburg would respond to this growth rate, with the decision to make Schönefeld Airport the additional terminal building of Brandenburg, the annual passenger capacity of the new airport was raised to over 40 million.

Following the opening, it is planned to increase the

annual passenger capacity to over 50 million with the commissioning of two satellite terminals within a 3-stage plan. This means the construction will most probably continue at the airport for the next 10-15 years.

### Reason for being almost a decade late

The airport project was in quite a mess due to the involvement of two separate states, Berlin and Brandenburg, and the federal government. The

shares of each of Berlin and Brandenburg states in the project were 37% and the share of the federal government was 26%. Problems such as planning failures, changes in design, and poor subcontracting and shoddy workmanship slowed down the progress. The failed privatization initiative, claims for damages of neighboring houses, shops, restaurants and even the unused train station regarding the noise pollution contributed to budget exceeding of the initial budget of € 2.8 billion.

The construction planning company declared bankruptcy in 2010. The opening ceremony scheduled on June 3, 2012 and which Angela Merkel and 10,000 guests were supposed to attend was canceled just 3 weeks before the inauguration due to the failure in fire alarm systems and smoke detectors. Then it was understood that this was just the tip of the iceberg, because after that date, it was discovered that many other huge technical mistakes were also made.



© Günter Wicker / Flughafen Berlin Brandenburg

A Bird's eye view of BER from 2013

## AIRPORT



According to Deutsche Welle (DW), 90 km of electrical cables were incorrectly installed, and 4,000 doors were incorrectly numbered. The escalators were too short and the emergency line to the fire department was erroneously constructed. It was even alleged that the roof of the airport was twice the authorized weight. In 2013, the European Union launched an investigation for the airport's flight routes, whether Germany breached EU environmental directives.

On top of all these failures, new allegations of corruption involving the activities of Siemens, Bosch and Deutsche Telekom in the airport fell like a bombshell and an investigation was launched. The German media portrayed the issue as the lack of ethical and moral values and accountability.

One of DW's claims was that the chief of the airport project was an imposter, not actually an engineer. It was also alleged that the whistleblower who had called out the corruption was poisoned at the airport,

but such allegation has not been proved so far. Also, one of the former directors of the airport project was jailed for taking huge bribe of €150,000 from the Imtech fire protection system company.

The assignment of politicians with limited project management experience for managing the supervisory board, the government's guarantee for taking steps to cover the extra costs and reduce some of the financial stress in such an important infrastructure project were also amongst the factors

that turned the project into a mess.

Berlin's mayor Klaus Wowereit, famously called the city "poor but sexy", was forced to resign also because of the airport project fiasco.

Construction companies, taxi companies and many of the owners of the shops that would be located at the airport went bankrupt due to delays. German newspaper Bild claimed that such developments cost German taxpayers €25 million per month. This medium-sized mega project was regarded as the "money pit" by the Germans.

### Following the inauguration

Climate activists sought to disrupt the opening of Brandenburg airport, the construction of which took 14 years. Thousands of activists inside and outside the terminal, many dressed up as penguins, protested the opening of the airport when it finally opened 9 years after the originally scheduled inauguration date.



The airport welcomed Turkish Airlines at BER Terminal 1 from Istanbul\_on 2nd November



Pegasus Airlines is one of the first airlines to depart from BER Terminal 5 on 25th October

With the inauguration, Berlin Schoenefeld Airport was officially renamed Brandenburg Terminal 5 (T5). Schoenefeld's IATA code was officially changed from SXF to BER, in line with the role of the additional terminal building serving the new airport.

Despite all the criticism, Brandenburg seems compatible to serve the vibrant German capital. Brandenburg will be able to host more than 40 million passengers per year at its three terminals (T1-T2-T5). A total of 17 airlines, including Ryanair and Wizz Air, will serve passengers from the previous Schoenefeld but new Brandenburg Terminal 5. Terminal 5 alone will be able to host 8-10 million passengers per year.

Following the inauguration of Brandenburg, airlines have gradually moved

there. EasyJet and Lufthansa made the first landings on October 31st. The first departure from the new terminal was made by easyJet, which flew to London on November 1st. Qatar Airways and Turkish Airlines were the first airlines that moved from Tegel Airport to Brandenburg T1.

A wide variety of services are available at T1 with 120 shops, restaurants and service facilities, spanning more than 20,000 square meters.

### Tegel Airport closed

Berlin's historic airport, Tegel, closed its doors for good on November 8th, following the opening of the Brandenburg Airport. Air France, the first commercial airline that landed in Tegel 60 years ago, was the airline that made the final departure from the airport.

Airbus A320-200 (F-GKXP) of Air France with flight number AF1235 departed for Paris Charles de Gaulle Airport and it



© BER  
Last Flight from Tegel Airport, Air France Lift off on runway

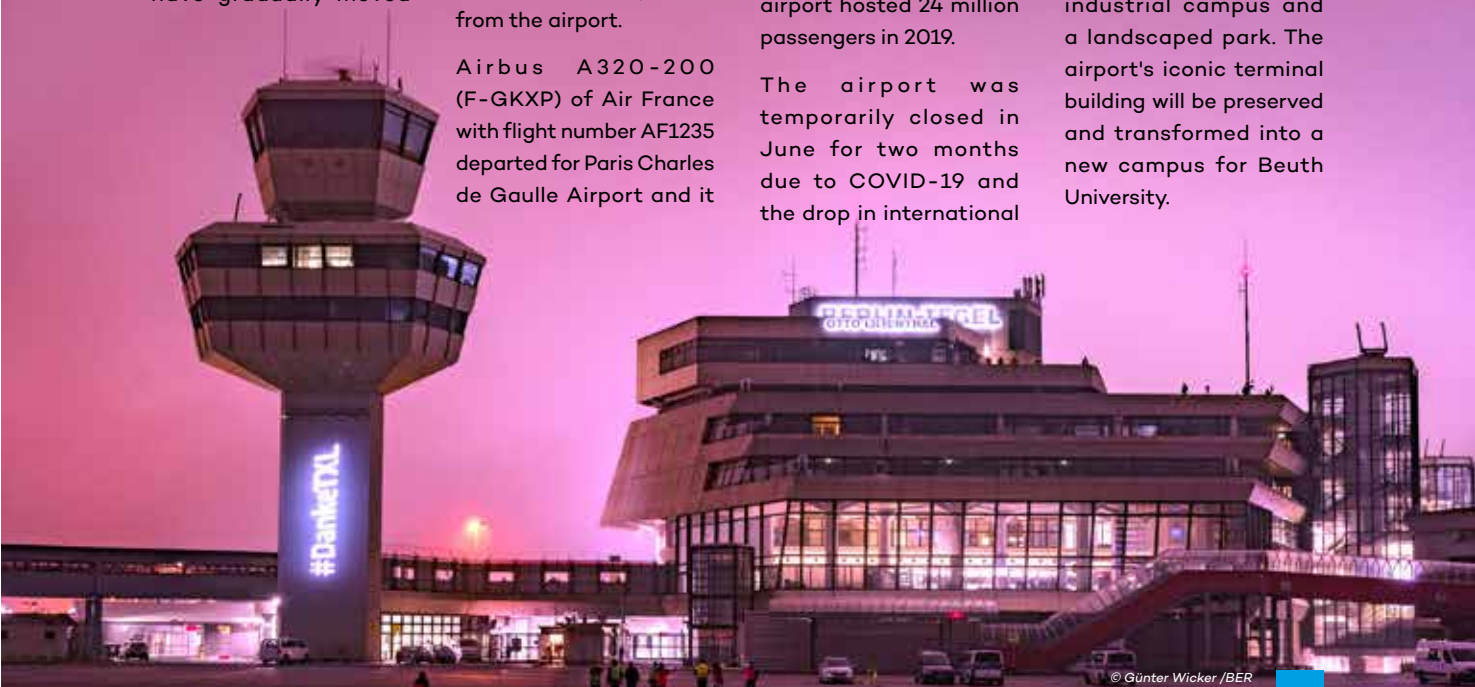
was the end of an era in aviation!

With Brandenburg's delayed opening of nine years, the small, historic airport in the heart of Berlin headed for the last roundup. Constructed in only three months to serve as the main airport of the German capital in 1948, Tegel was designed to serve only 2.5 million passengers a year, but the airport hosted 24 million passengers in 2019.

The airport was temporarily closed in June for two months due to COVID-19 and the drop in international

travel demands resulted in Tegel airport seeing its last passengers off a few months later than expected.

Tegel, which was closed to commercial aviation operations, will be transformed into a new research and industrial park called "Berlin TXL", a complex that will include much-needed homes, a vast research and industrial campus and a landscaped park. The airport's iconic terminal building will be preserved and transformed into a new campus for Beuth University.



© Günter Wicker /BER



Göksef Keskin  
Junior Researcher, Department of  
Biological Physics, Eötvös Lorand  
University / Glider Pilot

# Bio-Inspiration in Various Types of UAVs

The design community is rapidly adopting biologically inspired concepts as a valuable paradigm to enhance mission capability. The general concept notes that biological systems are often able to perform manoeuvres that cannot be duplicated by engineered systems based on traditional designs; consequently, the aspects associated with that capability for biological systems can be incorporated into engineered systems. Natural systems are used to inspire engineered systems in their modes of locomotion, manoeuvres, and control systems.

In flight especially, both marine and aerial biological systems inspire vehicle configuration studies. The chemical processes used in nature, such as energy and reproduction, are being studied but remain

challenging however, the issues of shape changing and mass distribution through morphing that is used in nature are often realizable in aircraft using off-the-shelf technology. A set of UAVs are developed and flown that directly incorporate biologically inspired morphing through articulated wings with shoulder and elbow joints along with twisting. One paper introduces a biologically inspired concept from pterosaurs to enhance mission performance; specifically, an aircraft is designed that incorporates a variable-placement vertical tail which is similar in nature to the cranial crest of the pterosaur were actually the first vertebrates to achieve flight which occurred about 225 000 000 years ago. This design allows the vertical tail to move back in a traditional airplane configuration and move forward in a pterosaur-inspired

configuration. The flight dynamics are analysed using computational aerodynamics to observe the variations in static stability and unique modes that evolve. Finally, moving the vertical tail over the nose is shown to have an adverse effect on both static and dynamic stability but can reduce the turn radius by 14%.

Morphing wings that change the shape and configuration of an aircraft can expand the flight capabilities of a flying vehicle to fulfill opposing requirements. This capability is particularly important for small drones, also known as micro air vehicles (MAVs), that can navigate in close proximity to obstacles. These MAVs should be highly manoeuvrable in order to rapidly change course with a small turn radius: for a given weight of the aerial vehicle, a small turn radius is obtained by maximizing the wing surface and the

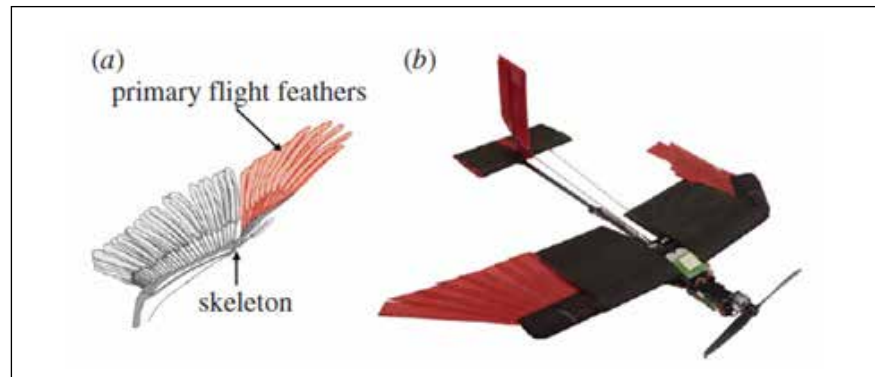
lift coefficient of the wing. However, wings with a large surface are very sensitive to wind; while, wings with a small surface generate less frictional drag allowing an aerial vehicle to fly faster and keep a constant forward ground speed in comparatively stronger headwinds. A wing with a morphing surface could adapt its aerial surface to optimize aerodynamic performance to specific flight situations. Novel wing morphing mechanism inspired by the folding mechanism of bird feathers was introduced by a group of researchers. Similar to birds, the outermost part of the wing is equipped with artificial feathers that can be folded to actively change the surface of the wing. This morphing mechanism can not only improve aerodynamic performance for manoeuvrability and wind resistance, but also provide roll control with asymmetric folding of the two wings. In this study,



the mechanical design of the bio-inspired wing was proposed for integration in a small drone, and the aerodynamic design of the wing used a novel bird-like aerofoil.

Computational simulations show the benefits of surface morphing for high-speed flight and manoeuvrability. In agreement with the computational results, wind tunnel characterization of a foldable wing prototype shows high lifting capabilities when fully deployed and a drag reduction up to 48% when the wing is fully folded. In this example, the effectiveness of asymmetric surface morphing is used to control the roll dynamic of a morphing wing prototype. Asymmetric surface morphing has been compared to conventional ailerons using a computational model. In agreement with computational results, wind tunnel tests show that asymmetric folding is comparable to conventional ailerons for roll control in low-speed flying conditions. Finally, as a proof of concept, the researchers validated the roll control authority of the proposed design with outdoor flights of a small drone with morphing wings.

The design of a morphing aircraft structure is highly dependent on the size,



weight, and expected role of the flight vehicle. This suggests that there exist no universal morphing solution, and that each approach to morphing will depend entirely on the vehicle itself. For instance, a supersonic morphing fighter aircraft is likely to be entirely different in shape and characteristics than a high-endurance UAV platform. Although the very concept of morphing is to bridge the gap between two very different flight regimes, there are a variety of physical constraints that will limit such transitions. Morphing aircraft structures are likewise dependent on this relationship, as the choice of actuator or skin material will be intrinsically dependent on the size of the aircraft. The approach suggested in this paper is limited to a morphing concept for a small UAV with a size, flying speed, and weight comparable to a variety of birds. With such close similarities, it is reasonable to draw on biological inspiration in structure and shape.

The possible benefits of morphing become evident by studying even basic aerodynamic and aeronautical formula. Concepts such as telescoping wings, variable chord, and variable aspect ratio have a direct bearing on the performance of the aircraft. Gull-wing morphing has an effect on the flight dynamics of a micro air vehicle, and a simple morphing strategy based on biological inspiration has been identified and has been used successfully on a 24-inch aircraft. The

results show promise in the ability of the morphing device to alter the vehicle's aerodynamic performance.

Changes in the geometry of lifting surfaces provide better flight performance in different flight modes. However, previous trials on full-scale aircraft showed that it's really worth applying variable geometry to commercial or off-the-shelf technology. With the development of low-cost UAVs, we have been seeing similar types of applications more often and will continue to see this trend in the future.





North American P-51D Mustang "Ferocious Frankie"

# SHG Airshow 2020 From the Eyes of SPOTTERS

We mentioned a spotting day event that took place in Moscow in our previous article. And in this article, we will be illustrating the annual SHG Airshow that takes place in our country.

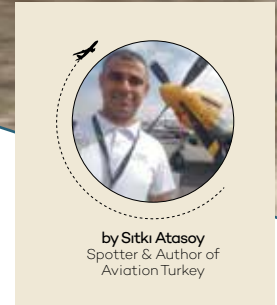
Like many other people, I had to watch the SHG Airshow 2020 far from the field as I could not attend due to certain issues arising from the

pandemic that we have all been going through this year.

Many groundbreaking developments which you will be reading about in detail in the following paragraphs occurred throughout this event and even though I could not be there up-close and in person, I had the chance to watch it live and was able to make my

own observations. On this occasion, I was appointed to present to you content which could be enriched with the observations of my aviation photographer colleagues who attended the event.

The International Airshow officially dubbed as SHG Airshow is hosted every year at the "Sivrihisar Aviation Center – Necati Artan



Premises" and is organized by the Sivrihisar Sportive Aviation Club in an effort to embrace aviation fans of all ages, worldwide.

The SHG Airshow offers priceless opportunities to people of all age groups, mostly the youth who are curious about aviation. This very fascinating organization was held for the first time in 2015



© Tayfun Yaşar



Douglas DC-3 "Turkish Delight"



© Tayfun Yaşar

North American T6G Texan/Harvard "Happy Hour"

and has been growing in popularity with each passing year and has grabbed attention in the international arena as well.

This year similar events were cancelled, postponed or transferred to virtual platforms in many countries. As for our country, SHG Airshow 2020 was carried out with limited participation of only aviation photographers and flight crews along

with the implementation of additional health measures.

The aviation photographers at this year's event were particularly interested in the event which involved many restrictions due to the measures adopted because of the pandemic. Unfortunately, only aviation photographers that were selected based on an objective evaluation that was made according to the identified quota were accepted to be present on the field. The point we

are most pleased about is the fact that decision-makers have grasped the concept that aviation photography is important and influences promotion of aviation activities, in other words, they realized that the aviation photographers are in fact cultural ambassadors.

The SHG Airshow is quite critical in terms of the promotion of aviation culture, air platforms and other branches that are part of various aviation processes. Therefore, we should additionally thank the event committee and the relevant decision

makers who gave us a place within the event as they are aware of the significance of the role that aviation photographers play in promoting the SHG Airshow 2020 to the entire globe, despite the limitations set this year on accepting viewers to the field.

Air platforms, aerobatic planes, jets planes, helicopters and many other interesting air vehicles with historical value belonging to the M.S.Ö. Air and Space Museum participated in the event this year and performed flights throughout the SHG Airshow. Different



© Tayfun Yaşar



© Zafer Buna



© Zafer Buna

### Boeing Stearman "A75N1 PT-17" & Antonov AN-2

than the previous events, this year, the Cessna 195, which is the first Cessna plane built completely of aluminum and recently added to M.S.Ö. Air and Space Museum's inventory, appeared in the skies above Sivrihisar with its shiny and elegant airframe, striking beautiful poses for delighted aviation photographers.

As part of the aviation safety and health measures adopted during the pandemic, the SHG Airshow 2020 organization committee demonstrated sensitivity and awareness on precautionary measures such as taking the body temperature of individuals entering and exiting the field and the distribution of hygiene kits to all participants. Moreover, the aviation photographers attending the event were pleased by the nice gesture of the SHG Airshow 2020 organization committee as they allocated a special

space for them to maintain social and physical distance and served them food and water throughout the event and they inquired on their health conditions after the event by making phone calls to the aviation photographers who had participated in the event.

This year, the event opened its doors only to flight crews and aviation photographers. Yet by streaming live uninterruptedly from the beginning to the end, with the help of a professional

production crew, it enabled our nation to enjoy the performances on TV and online.

I watched the show with bittersweet joy due to the limitation set on the participation due to the pandemic and the words of Tolga Özbek, a P51 pilot, grabbed my attention as he said, "Though I have been inviting her for years now, my mother has never attended the event. Yet, this time she

watched it live on YouTube and I enjoyed that..."

The support granted by public institutions and organizations to the SHG Airshow 2020 event was remarkable and many fixed-wing and rotating-wing air platforms posed for the SPOTTERS and viewers watching the live-streamed event.



© Tayfun Yaşar





© Zafer Buna

Cessna 195 A "Businessliner" & "Happy Hour"

## Flight demonstrations at SHG Airshow 2020

The SOLOTURK F-16 Performance Team under the 132nd Fleet of our Turkish Air Forces fascinated the viewers as usual.

Different than in previous years, this year the landing, take-off of the CASA CN235 serving under the body of the ATAK Fleet of our 201st Search and Rescue Fleet and its tours over the field captivated aviation photographers as parachute jumps were performed, adding to the excitement of the event.

The Gendarmerie Steel Wings Aerobatic Team founded in 2018 under the Aviation Unit of the

Gendarmerie General Command performed for the audience with Sikorsky S-70 helicopters as another aerobatic team along our country's other aerobatic teams, namely the SOLOTURK and Turkish Stars. Especially, their farewell gesture by saluting the aviation photographers as part of the final airshow package was fantastic and was imprinted in all our memories.

The helicopter team of the General Directorate of Security's Aviation Department fascinated viewers with the flight demonstrations and passes they made with Bell and Sikorsky helicopters.

With its wonderful performance and exquisite sound, the P51 Mustang, with its giant airframe the ANTONOV AN-2 and BOEING Stearman with their massive passes

overhead, DOUGLAS DC-3's acrobatic and exciting airshow gave aviation photographers a great opportunity to capture unforgettable images.

Ali İsmet Öztürk who engraved our great leader Atatürk's name over the wings of the "Purple Violet", one of the most advanced aerobatic planes, once again left us all breathless with an exceptional airshow.

During the performances, the aviation photographers enjoyed capturing the images they had longed for.

The event of 2020 was different than the events of the previous years due to the COVID-19 pandemic, but it was successful despite all the challenges. We owe a debt of gratitude once again to those who contributed selflessly to the organization of the event.

In addition to being a visual feast for viewers, the SHG

Airshow offers a vast variety of opportunities for aviation photographers to display their talent while capturing beautiful images. Thanks to the diverse air platforms attending the event and their different levels of capabilities, this airshow is regarded as an event that enables aviation photographers to experience all the shooting techniques we have mentioned in previous issues.

I am pleased and at the same time motivated by the fact that the experiences I have shared in the Aviation Photography (Spotter) articles are guiding beginner aviation photographers out there. I want to share an e-mail sent by Ayca Duruloğlu, who benefited from our previous articles and who seized the opportunity to implement what he learned so far, at the 2020 SHG Airshow. Wishing to see you in the coming issues...



© Aycan Duruloğlu

"I decided to become a Spotter in 2018 during Semin Öztürk's airshow at the Aeromania 2018 in Romania, I asked myself, why don't I shoot this airshow? I failed to adapt myself to this thought due to my hectic work schedule in those days and my equipment was not quite convenient for this activity. Later, when I returned to Turkey for good, I decided to prioritize this issue. Unfortunately, I could not shoot a single decent photograph which I could claim "this is it" during the October 11st Mudanya Ceasefire airshow, held in Sivrihisar last year (2019), but I did not give up.

Then I started to follow the spotters in Turkey. My adventure of overwhelming my spotter colleagues with my many questions started after the 2019 Sivrihisar Airshow. In those days, I

became acquainted with Sıtkı Atasoy's articles in Aviation Turkey magazine.

Sıtkı Atasoy's articles indeed serve as guidance for beginners. For instance, a sentence in the 5th issue of the magazine told me, "Surely it has a financial burden as well" therefore "first scale your enthusiasm about

it" and this made me think that maybe instead of immediately buying equipment we should think about how enthusiastic we are about becoming a spotter. So, I questioned my enthusiasm and I witnessed that the enthusiasm within me had already transformed into a sonic burst. Gradually I started to improve my

equipment to be able to get better shots in this expensive hobby.

Again, the same issue, spotters were instructed to have clean cameras and lenses, so I took my camera and lenses in for service and had them cleaned.

Mr. Atasoy mentioned in this issue that planning was critical; therefore, I made a very good event planning before going to the event. Then again, of course my plans were not working yet like the plans of our mentors.

I examined in particular, the actions of a professional spotter throughout the event; he lifted his camera as he spotted an airplane and pressed the shutter. Though, I could only manage to catch merely a part of the image he captured in a single shoot maybe in 10 photos.

I am writing these lines



© Aycan Duruloğlu



© Ayca Duruloğlu

quite carefully because my mentors are quite good and I am aware that I was not yet anywhere near them. Though I attended the event with 2 blank and formatted 64 GB cards (RAW-L), by 15:00 p.m. both my cards were full. At this point, I would like to remind readers again of the words of my mentor Mr. Atasoy, "I will gain control as the number of my shots and experience increases", so one day I will be able to capture moments instantaneously like my mentors and manage to conduct optimum photo shoots. Surely, I am very happy to have made great progress compared to last year. Reading relevant literature and working hard, both lie at the basis of this profession as well as fully complying with the advice of mentors yet creating one's own style at the same time.

In the following issue of the magazine, Sitki Atasoy recommended the use of camera modes. Until I read that article, I believed in the necessity of conducting manual photo-shoots. I felt relieved in a

sense when I heard the same from other fellow spotters at the Sivrihisar Airshow as I had already decided to take photos in snapshot mode. I made two automatic adjustments to the camera, the first one was for shooting propeller planes since most of the planes were propeller planes and I had to capture a dynamic shot of the propellers to add the sense of motion in my photos. Therefore, as told by my mentor Mr. Atasoy, I adjusted my shutter speed to a lower rate and left the rest to my camera. Surely,

I had to work for a long time until I was able to find the most appropriate rate for myself. The second automatic adjustment of the camera was the one for shooting non-propelled vehicles, for instance the SoloTurk F-16s, they looked as if they were suspended in the air, in other words as if they were frozen. I adjusted the camera to a high shutter speed and of course once again used the snapshot mode of the camera. And if you ask me what the snapshot mode is, well it is the TV mode

in my camera and in other cameras it is the S mode.

My next goal is to work on the PAN technique for planes and to start taking photos in diaphragm (AV) mode. After all, I have learned that this applied to me too; I did not have to shoot manually.

By the way, I would hereby like to thank all my supporters and Sitki Atasoy for equipping me well with good advice this year. I am looking forward to the next issue of this magazine."



© Ayca Duruloğlu

MD Helicopters MD500E



## New Trend in Aviation Amid the COVID-19 Pandemic

by Muhammed Yilmaz

With the closure of air space and land borders, the quarantine measures adopted by countries, and the fear of the lethal effect of the virus, global travel demand has dropped dramatically. The aviation industry has been going through the most turbulent period in its history for the last 9 months. All the stakeholders of the industry are trying to cope

with this 'slippery slope' for survival on one hand; they are also waiting for positive news about the vaccine and dreaming of an accelerated recovery on the other hand.

The pandemic that hit the entire aviation industry hard has created an acute awareness among people about the importance of traveling and flying in their lives. People, who have been obliged to

replace their instincts to explore the world with the discovery of their inner worlds for months, will not miss the opportunity when they have the chance to travel and fly again.

In order to achieve a slight contribution to their cash flows and to protect their staff, airlines have taken action to create an opportunity to satisfy people's desire to travel and fly: Flights to Nowhere.

The Flights to Nowhere trend, even though it does not have a great positive effect on the severe financial distress of airlines during the pandemic, it has potential ancillary revenue but is also attracting negative attention from the environmental organizations. Scientists are trying to comprehend such a huge demand of people. Some airlines call these 'scenic flights';

# FLIGHTS TO NOWHERE

others are more direct, calling them “flights to nowhere.” Here are the details of the new trend that the pandemic has brought to the aviation industry, with its financial, environmental and scientific aspects.

## It all started with the airport experience

In July, a travel experience project was launched at



Songshan Airport in Taipei, the capital of Taiwan, where international flights were entirely suspended, for those who were stuck at home and missed flying for a long time. At the end of a draw attended by 7 thousand people on Facebook, 60 passengers per flight were chosen to have a fake flight experience. Arriving at the airport to pretend to travel, passing the security check, “passengers” having their boarding passes in hand boarded the plane. The passengers, who took their seats, spent some time onboard for a while and tasted the treats offered to them, then disembarked the plane and toured the airport before returning to their homes.

The great interest in this project has also inspired airline companies. Other countries in the region such as Brunei, Japan,

Hong Kong and Australia started to plan special flights where passengers go nowhere, with a similar approach. Japanese airline All Nippon Airways conducted a Hawaiian-themed 90-minute flight with 300 passengers.

Taiwan's biggest carrier Eva Air has also set out to take a three-hour country tour with its Hello Kitty livery A330 aircraft for its travel-starved passengers. As part of the project developed on the occasion of Father's Day celebrated in Taiwan on August 8, the plane took off from Taipei Taoyuan Airport and returned to the same airport after flying over Guishan Island, Huadong coast and nearby islands.

The cost of the flight operated under flight number BR5288, which sounds like “I love dad” in Taiwanese, was US\$180. Passengers were also

offered the opportunity to upgrade their seats to Business Class for an additional US\$ 34. Beef noodle prepared by Michelin-Star Chef Motokazu Nakamura was served to the passengers in-flight. As expected, this special flight attracted great attention from Taiwanese travelers. All 309 seats were booked.

## Dining experience on Airbus A380

Singapore Airlines (SIA), which is one of the companies hit hard by the pandemic, has announced that it is planning special flights to nowhere. Passengers getting on the airplanes to take off from Changi Airport would again land at Changi Airport after a 3-hour tour.

It was even considered to add some special



options to these special flights to improve the "travel" experience of the passengers. Staycations at the best hotels in the country, shopping vouchers at Jewel Changi Terminal and limousine ferry rides...

However, following an outcry over the potential environmental impact of flights and the carbon footprint, Singapore Airlines dropped this idea after the review and made its way to another option. The airline, the flights of which reduced drastically due to the pandemic, decided to organize 3 separate events to interact with its customers.

SIA has started to offer dining service on one of the Airbus A380 aircraft grounded at Changi Airport. While having dinner on the Jumbo jet, customers, who had the chance to experience the in-flight entertainment system, were also offered souvenirs during the A380 tour after dinner. This project also attracted a great deal of attention from the customers who

had the chance to taste the most special dishes offered by the airline to their passengers on the world's largest passenger aircraft.

SIA also organized family tours to the training facilities of cabin attendants and pilots and gave visitors the chance to interact with the flight crew while giving details on the 70-year history of the airline. The tours are realized with complimentary craft activities for children such as shaping balloons into animals and making their own batik roses, while adults are offered the chance to experience real flight simulators. As part of the tour, which includes wine appreciation sessions and oratory workshops, the most popular dishes served to passengers on flights are also on sale.

Developing a project for customers who want to enjoy the world-renowned SIA in-flight taste from the comfort of their own homes, the Airline prepares home-dining packages and pairs them

with wine or champagne. Customers are able to choose from 10 menus including First Class and Business Class dishes and order them to their homes.

### Tickets sold out in 10 minutes

Australian Qantas has also started similar practices like other airline companies. Tickets for a 7-hour special flight sold out in 10 minutes after going on sale. The ticket prices of the 7-hour flights operated with the Boeing 787 Dreamliner, including centers such as Queensland and the Gold Coast and covering the country, were set as US\$ 575 to US\$ 2,765. The company executives said that they knew this flight would be popular, but they didn't expect it to sell out in 10 minutes.

### Matchmaking in the Air! - 'Love is in the Air'

Eva Air decided to take its flights to nowhere one step further after the flight conducted on Father's Day, which drew great attention. The airline

has launched a new flight model that will help singles find love in the sky.

Based on the idea that singles often travel the world in search of a new love, Eva Air will offer its single passengers the opportunity for a three-hour romantic date in the sky in its project called 'Love is in the air.' The flight will start from Taipei Taoyuan Airport and end at the same airport.

While single passengers are encouraged to meet and have in-depth conversations, meals prepared by Michelin-Star chef Motoke Nakamura will be served to passengers. Even though the number of COVID-19 cases in Taiwan is very low, passengers will be asked to keep their masks on when they are not eating or drinking. Passengers will be able to walk around and chat in the cabin.

'Love is in the air' flights will be conducted three times on Christmas Day, New Year's Eve and New Year Day. Special surprises will be prepared for each flight.



Certain requirements will be sought for passengers to participate in matchmaking flights. There will be only 40 passengers on each flight, 20 women and 20 men, and all of them have to be university graduates. The age specification will be between 28 and 38 for men and 24 and 35 for women. Some preliminary surveys have been done to determine such criteria.

The ticket price was set at US\$ 294 per person, and all 40 seats for the first flight were sold out within a week.

### Why do passengers show great interest?

How come people, who always seek ways to pay less to the airlines that fly them to the destinations they wish to go, are very keen to pay for it now, despite the annoyances (airport procedures, security check queues, mediocre in-flight meals, social distancing measures and the risk of COVID-19 infection), even knowing that they go nowhere?

Experts working on this issue think that 'nowhere flights' are not impractical efforts for the airlines to increase sales. The 'nowhere flights' projects manage to catch the attention of travel lovers. Because, according to experts, this new form of travel gives the frequent flyers the feeling of returning to normal life and a sense of escape from the gloomy atmosphere of the pandemic. In circumstances where air travel becomes impossible, the routine and sometimes even painful aspects of flying can become attractive.

Some people think flying means going from one place to another, yet others think it is a means rather than an end, in other words it is the exciting part of the travel experience. That's why many of the 'nowhere flights' passengers say that they realized how much they missed traveling, with the cabin crew greeting them at the gate, the captain's announcement and all other details about their experience. Thus, such flights at least satisfy the passengers' desire to travel. Under normal circumstances,

we often find the time we spend at airports boring. However, during travel restrictions, there is a longing for being even at ordinary places. Scientists agree that "we are starting to think that even ordinary places that we normally go have an exciting side."

Studies on the intersection of psychology and tourism at the Polytechnic University of Hong Kong reveal that an innate "desire to escape" helps drive the travel experience and pandemic-era lockdowns likely intensify that urge.

Although the destination itself is important for some travelers and for others, with whom they are going to that destination, it is a fact that travel makes us feel better, including relieving our stress and anxiety and improving our cardiovascular health, and in view of this, it's not difficult to understand why people show so much interest in 'flights to nowhere'.

### Environmentalists are uncomfortable!

Climate and environmental activists do not agree with airlines regarding these flights, which are associated with boomerang. Environmentalists who blame airlines for damaging the environment advise them to seek more comprehensive solutions to recover, while believing that these 'air travel bubbles'

transporting passengers nowhere and leading to environmental pollution will not be fruitful. The study finds that continuation of travel restrictions due to the pandemic could possibly decrease this year's annual carbon emissions by 7-10 percent. That's why they are very annoyed with airlines conducting 'flights to nowhere', which they see as an obstacle to the realization of such a possibility.

Qantas executives announced that they have purchased carbon offsets to alleviate the environmental impact of the seven-hour flight, while Royal Brunei Airlines executives defend themselves by saying that they are using an Airbus A320neo, which has fewer emissions than many other planes. Singapore Airlines, on the other hand, manages to receive full marks from the activists by saying that they have given up such flights due to their environmental sensitivity.

There are a number of those who think that the popularity of 'nowhere flights' will usher in a new era for travel when the pandemic ends. I am one of those who believes that the COVID-19 vaccine will not only save the lives of people, but it will also pop this travel bubble and get passengers back up in the skies, truly ready to soak in the splendor of air travel once again... 🌍

## AVIATION CLUBS

@TEAM



@Team Leader,  
Yağmur Gençoğlu



@Team Member Hande Zeydan,  
Communication Executive



@Team Member Berra Nur  
Beşir, Publishing and Production  
Executive

### Our Misson

The @Team has come together with the aim of developing projects at home and around the world, reflecting its passion for aviation and space, with a team profile that proves that the aviation industry can appeal to people from all disciplines, regardless of their field of training.

### Our Vision

The @Team underlines that everyone can seek their own future in the skies, with our team profile proving that the aviation industry can appeal to people from all disciplines regardless of their field of training, and at the same time, we aim to inspire fellow students with our ideas and projects, and encourage new creative ideas and new collaborations through an appropriate inspiring environment where are ideas free to soar.

## Eskisehir Osmangazi University

Founded in 1970, Eskişehir Osmangazi University has been providing education at international standards in many associate and undergraduate programs in science, art, technology and sports. Hosting thousands of students from 57 different countries at its campus, ESOGU has a multicultural education environment. ESOGU, which supports many aviation activities with the advantage of Eskişehir being the capital of aviation, stands out as a higher education institution that places



great importance on social activities, teamwork and cooperation by hosting 197 active student clubs from various branches.

### ESOGU - Hezarfen Aeronautics and Space Club

Eskişehir Osmangazi University - Hezarfen Aeronautics and Space Club was established in September 2006 under the Faculty of Architecture and Engineering and started its activities actively in 2009. Our club consists of four main teams: training, events, organization and projects. Many activities such as conferences, workshops, project preparation and execution

have been organized so far by these teams for the development of students. Each event attracts the attention of many students from different faculties and departments. Our club, mostly composed of engineering students, actively hosts more than 100 members who receive vocational education in different branches from science to art. Thanks to the various activities conducted, our club is one of the prominent clubs within our university.



## ESOGU – Mission of Hezarfen Aeronautics and Space Club

Eskisehir Osmangazi University - Hezarfen Aeronautics and Space Club was established in September 2006 and started its activities actively in 2009. Our main objective is to gather our members who set their hearts on aviation under one roof, in the footsteps of Mustafa Kemal Atatürk, and to raise qualified individuals in the fields of defense

industry and Turkish Aviation History. Our vision, which serves this objective, is to open up to the world with our innovative projects and comprehensive events that rally the aviation & space and defense industry industries together, to gain team spirit and to train ourselves as competent graduates for professional life and to add value to Eskisehir's aviation center identity and the profile of our university through our activities/events that strengthen university-industry cooperation.

## ESOGU – Hezarfen Aeronautics and Space Club Management Team

### Chairperson:

*Sena Nur Kızılay*  
– Department of Metallurgical and Materials Engineering

### Vice Chairperson:

*Sefa Kaya* – Mechanical Engineering

**Head of the Event Team:** *Mete Özkaya* – Computer Engineering

**Head of the Project Team:** *Oğuz Durmaz* – Mechanical Engineering

**Head of the Training Team:** *Yusuf Berk Kısa* – Electrical and Electronic Engineering

**Head of the Event and Organization Team:** *Berra Nur Beşir* – Comparative Literature

**Club Auditor:** *Murat Şahin* – Mechanical Engineering

**Club Treasurer:** *Burak Öz* – Industrial Engineering



## ESOGU - Logo and Slogan of Hezarfen Aeronautics and Space Club



"We didn't have time to fall, so we flew!"



## ESOGU – Hezarfen Aeronautics and Space Main Activities Hezarfen Defense Industry Days '19

Hezarfen Defense Industry Days, which has become a tradition since 2011, looking at the aviation industry from a wide perspective, is an organization that has been held with the participation of more than six

thousand people so far. Many national and international companies and participants have attended our organizations, and at the end of the event, participation certificates are given to participating students who have had the opportunity to closely follow the Defense Industry by attending the event that lasts for two days each year.

## AVIATION CLUBS



Thanks to these conferences, where senior executives of Defense Industry companies deliver speeches, many new project agreements were signed between our university and companies, thus creating professional working environments where students can gain experience both during their vocational and student lives.

For Hezarfen Defense Industry Days 2019, TUSAS Engine Industries Inc. Chairman and CEO Prof. Dr. Mahmut Akşit, Nurol Technology Inc. General Manager Cem Sapmaz, ICI Technology Founder Kenan Işık, TUMOSAN General

Manager Kurtuluş Öğün, Havelsan System Security Leader Murat Kasap, Schneider Electric, SOLOTURK Founder F16 Test Pilot Murat Keleş, ROKETSAN Engineering Director Cenk Önen, C4Defence Magazine Author Sami Atalan, Aviation Association for Everyone, Cockpitturk were invited as speaker participants.

We ended the last day of our event with an exciting flight simulation, which turned into an interactive environment with the interest and curiosity of our fellow students from almost all faculties of our university.

### Hezarfen Aviation Days '18

Hezarfen Aviation Days, organized by Hezarfen Aeronautics and Space Club every year to examine and discuss aviation and space issues and bring enthusiasts together with the experts of the domain, was also held in 2018, with the participation of valuable experts such as TAI Veli Bayar, 4B Engineering, TAI Emre Kargin, GORDION Flight School GUMUSH Satellite, PEGASUS Airlines, TUBITAK Murat Yüksel, Author and Youtuber Kerem Gök, Author İsmail Yavuz, SEDS Organization, Assoc. Prof. Melih Cemal Kuşhan, GÖKTÜRK-1 Halit Mirahmetoğlu, Anadolu University Muhammer Tün and American Life Language Institute.

In the two-day event, Hezarfen Aeronautics and Space Club came closer to its goal of presenting aviation enthusiasm and, history to people of all ages and raising sportive aviation awareness. F16 pilots and paragliding instructors also attended the event and with the interest of participant students, the organization has turned out to be an interactive environment with information flow, with the model plane competition at the end of the event, accompanied by our gifts that appeal to everyone, such as concert tickets.



## Hezarfen Aviation Summit '17

Continuing the tradition of Hezarfen Aviation Days also in 2017, Hezarfen Aviation Summit was held with the participation of ROKETSAN, Technical Leader at DB MARS Information Technologies and Defense Industry Dilek Başaran Bil, Turkish Aeronautical Association (THK) engineers and pilots, Haberturk Aviation Editor Muhammed Yılmaz, TAI, and METU Aerospace Engineering Prof. Dr. Yurdanur Tulunay. During the event, THK model aircraft, ELBA Aviation - Aviation Camp, THK - glider flight and model aircraft and training gifts from our club were given. Hence, Hezarfen has become one step closer to touching everybody's passion for aviation.



## Future of UAVS Event

While Unmanned Aerial Vehicle systems were newly being discussed in our country, this event was held in May of 2016 with the participation of STM UAV Systems Specialist Cengiz Karaağaç, TAI Guidance Control Department Design Specialist Engineer Tuğrul Yıldırım, AUTONOM TECHNOLOGY General Manager Nezir Ertürk, TEI Engine Control Specialist Engineer Süleyman Altınorak and Military Concept and Doctrine Specialist Sami Altan as speakers and we carried out many award-winning projects thanks to this event.



## Turkish Aeronautical Association Turkey Paragliding Championship Tour

As the Hezarfen Aeronautics and Space Club team, we watched the championship held in İnönü/Eskişehir on October 15 and had the opportunity to follow the excellent view of both the scenery and aviation demonstrations with excitement.



## TUSAŞ – Turkish Aerospace Tour

Together with our club's advisor Assoc. Prof. Melih Cemal Kuşhan, we organized a technical tour to TUSAŞ - Turkish Aerospace where we had the opportunity to see and examine the T-129 Atak, Anka and Hürkuş-C projects.

## AVIATION CLUBS

### “Sky Hidden in Blue” Event

Unlike other conventional-themed aviation events, “Sky Hidden in Blue” is an event organized on sportive aviation. During the 1-day event in 2016, we had a great

time with Paragliding Trainers Sedat Şişman, Metin Sözsoy, the Turkish Armed Forces National Team and Turkey Parachute National Team member Cengiz Koçak and THK Flight Instructor Faruk Işık, attended as the guest speakers.

### Activities of Our Training and Project Team

Our Training and Project team, another branch of our club, participated in the competition organized by the Air Force Academy in 2011 with the first UAV design named Muh-1 and came in fifth and then joined TUBITAK UAVTURKEY. Recently, it has been working on an RC model, altitude missile, autonomous UAV projects and various defense technologies. We have started our CubeSat project with our project team established after the elimination at the end of the training, with our workshop held with Murat Süer, the Founder of GUMUSH Aerospace & Defense.

At the same time, conferences, workshops, and training sessions are organized regularly. Such as project preparation and execution that meets the team's technical knowhow and the requirements needed to keep up with the sector.



### CUBESAT Workshop with Gumush Aerospace & Defense



Hezarfen  
TARİH: 26-27-28 NİSAN  
SAAT: 13:00-17:00  
YER: ES08Lİ F5 KONFERANS SALONU  
İLETİŞİM: İSMAIL AVCI 0554 781 07 09

## Sivrihisar Aviation Center Tour



### The Last Word

We are the generation of the Turkish Aviation History and Mustafa Kemal Atatürk, who proved to this country that there is a way out in the skies. In the same way as we have seen and learned from our past, we have to continue the same today. Our greatest goal is to bear in mind that the future is in the skies and make fresh young minds hold their heads high. We wish to live this pride and cherish this for generations. We would like to thank the @Team and Aviation Turkey magazine, who have brought us together with many air and space enthusiasts, and perhaps we will cross paths in the future.

### ESOGU – Hezarfen Aeronautics and Space Club Contact Details

-  [INSTAGRAM @hezarfenhavacilik](#)
-  [TWITTER @esoguhezarfen](#)
-  [FACEBOOK esoguhezarfen](#)
-  [LINKEDIN Hezarfen Havacılık ve Uzay Kulübü](#)
-  [E-MAIL hezarfenesogu@gmail.com](mailto:hezarfenesogu@gmail.com)

## AVIATION CLUBS

### IGU – Aviation Club

Istanbul Gelişim University Aviation Club was activated in the spring semester of the 2017-2018 academic year. Since it was founded, important persons from the aviation industry have been hosted at our university, social projects have been realized and trips have been organized. Our club is open not only to students who study aviation, but also to anyone who is passionate about aviation.

### IGU – Aviation Club Mission

As the IGU Aviation Club, our mission is to promote and popularize aviation within our university, to organize activities such as aviation days, trips to airports, competitions and conferences, to participate in aviation fairs, to prepare students for professional life and to be active, to reach the large masses by cooperating with other clubs, to conduct interviews and have conversations with aviators touching the spirit of aviation with their stories, to organize events with our fellow aviators not only in the academic field but also with social responsibility projects.

### IGU – Aviation Club Logo and Slogan



*"Those who dream in the skies have unfulfilled dreams on earth"*

### IGU – Aviation Club Main Activities

#### IGU Aviation Days

IGU Aviation Days is an event where information transfer is achieved through experienced people from almost all branches of aviation.



Established in 2008, Istanbul Gelişim University (IGU) took place as the only university from Turkey in the final of the category of 'Internationalization Strategy of the Year' where 7 universities from around the world were shortlisted by the Times Higher Education Asia (THE) in 2019.

Besides, IGU Vocational School Aircraft Technologies Program and School of Applied Sciences Aircraft Body Engine Maintenance Department were examined by the Directorate General of Civil Aviation (DGCA) and have been certified as a "Recognized School" within the scope of SHY-147. The 4 tasks in the training program of our Aircraft Technologies School are implemented in the MNG Jet hangar with the protocol made with an MNG Jet.

### IGU Aviation Club Members

**Chairperson:** Talha Kıvanç  
– Aviation Management

**Vice Chairperson:** Beyza Kahraman  
– Aviation Management

**Secretary:** Oğuzhan Devlet Kocabaş  
– Aviation Management

**Social Media Expert:** Ali Onat Erden  
– Aviation Management

**Sponsorship Expert:** İrem Çakır  
– Aviation Management

**Full Member:** Emir Topal  
– Cabin Services

**Full Member:** Enes Kaan Güvercin  
– Aviation Management

**Full Member:** Banu Dinç  
– Nutrition and Dietetics

**Full Member:** Beyza Özsöz  
– Aviation Management

**Full Member:** Serhat Kaya  
– Aviation Management

**Full Member:** Yusuf Kahriman  
– Aviation Management

**Full Member:** Yadel Çakmak  
– Aviation Management



## IGU FLYIN

At the IGU FLYIN event that was organized in December 2018 we brought together many aviators with aviation students to achieve occupational information transfer.



### Conversation with Pilot Abdullah Arpa

A conference was held in which Abdullah Arpa shared his experiences and the participants wanted to be a pilot found the answers of the questions in their minds on what path to follow.

## Let's Get to Know the Turkish Aeronautical Association

At our event which took place with the participation of Turkish Aeronautical Association (THK) Konya Branch Treasurer Bedir Direk and THK Konya Young Wings Leader Afranur Gürcüoğlu, the steps to be taken towards joining the Turkish Aeronautical Association were discussed and the courses provided free of charge to the students were mentioned. Then, the interested members headed out to take the model aircraft course to the Eskişehir Turkish Aeronautical Association.



## Flight Simulators

Accompanied by Operation Manager Yusuf Çuhan, an event was organized with participants, consisting of aviation students, to examine flight simulators and watch the operation of simulator capsules.



## AVIATION CLUBS

### Training and Careers in Aviation

A conference was held where we received information from Civil Aviation Lecturer Evren Yılmaz, one of the guest speakers, on how to focus on our career as aviation students and how to progress in our decision-making processes. This conference also became a comprehensive event where we had the opportunity to chat with our speaker, Traveler & YouTuber Doğançan Karabudak, who gave tips to those who want to participate in international programs such as Erasmus+ and seek ways to realize their dreams of becoming travelers.



### March 8<sup>TH</sup> - Angels of the Skies

On March 8<sup>th</sup>, International Women's Day, a conversation was held with the women in aviation, flight attendant Müge Bekman and trainee pilot Ceren Mete.



### Conference with Gyrocopter Pilot Hatice Nur Gündoğdu

A conference was held with the participation of the Gyrocopter Pilot Hatice Nur Gündoğdu, who came to the fore with her guidance in this field, for fellow students who are interested in not only the technical but also the sports side of aviation.



### AYJET Flight Academy

A 1-day event was organized at AYJET Flight Academy so that our fellow members, intending to receive pilot training at Ayjet Flight Academy, could experience what they would face in the future.



### The Last Word

It is our greatest goal to see even one person becomes interested in aviation on this journey we set out to instill in everyone the love for aviation. Let the earth be yours and the sky ours, let our minds always stay in the sky. Before finalizing our words, we would like to mention the quote of Mustafa Kemal Atatürk, who understood the importance of aviation before anyone else and pioneered the foundation of the Turkish Aeroplane League. "The future is in the skies. Nations that cannot protect their skies can never be sure of their future." We would like to thank the @Team and Aviation Turkey magazine for providing us the opportunity to take part in this platform.

### IGU Aviation Club Contact Details



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# “BAŞÖĞRETMENİN GÖSTERDİĞİ İSTİKBALE DOĞRU”

ONLINE SEMPOZYUM 2020

**AÇILIŞ KONUŞMASI**  
**“BAŞÖĞRETMEN ATATÜRK  
VE HAVACILIK”**

DR. EKBER ONUK

**MODERATÖR**  
AV. LALE KAPLAN

**PANELİSTLER**

MAK. MÜH. & TARİH BLM. UZM. BÜLENT YILMAZER

PROF. DR. ADİL YÜKSELEN

KAPTAN PİLOT DR. BURCU ŞAHİNKAYA

MÜZECİ & YAZAR ORHAN BAHTİYAR

**22 KASIM**  
**PAZAR 17.00**



@Team

**UUMK** UÇAK UZAY  
MÜHENDİSLİĞİ  
KULÜBÜ





## New Simulator Facility for the Dornier 328 Turboprop Near Düsseldorf, Germany

As part of its continuing global support for the Dornier 328 fleet, 328 Support Services GmbH is pleased to announce that an EASA certified Dornier 328 Turboprop Full Flight Simulator (FFS) Level DG is now in Germany and will be available for training from the 1st of October 2020 onwards. The simulator received its certification from the German Federal Aviation Office (Luftfahrt-Bundesamt – LBA) on September 25th 2020.

The simulator will be operated in partnership with Simulator Training Solution GmbH (STS) although 328SSG will maintain ownership of the simulator and offer training, on a fixed rate per hour basis. The joint team has been preparing the simulator over the past few months and it is now mentioned on the website.

“Given the excellent expertise of 328SSG in supporting the Dornier 328 fleet over many years, we are proud to partner with them on this project, supporting the training of the next generation of pilots on the Dornier 328,” said Jan Hünerfeld, CEO of STS.

Dave Jackson, Managing Director of 328SSG stated: “It is essential to keep our operators up to date with the latest safety requirements and training, and ensure their flight training even during the current COVID-19 situation, regardless of their flying activity. Establishing the simulator in Germany, is a major step towards simplifying our activities and extending our service offering to our Dornier 328 operators.”

## Domestic Flights with Air Astana on Embraer 190-E2 Aircraft

Air Astana is introducing a new Premium Economy Class on all flights operated by its popular Embraer 190-E2 aircraft. Premium Economy Class occupies seat rows from one to 12 and delivers the same award-winning levels of service and comfort of the Business Class it replaces, albeit at 35% lower fares. The new product debuts on domestic flights from Nur-Sultan to Shymkent, Atyrau, Aktobe and Ust-Kamenogorsk and from Almaty to Kyzylorda from November 23.

The airline’s Premium Economy seats offer more space and comfort than Economy Class in its attractive 2 by 2, no middle seat layout. It also allows two baggage items at 32 kg each, at no extra charge.

Nomad Club members travelling in Premium Economy Class will earn the same Nomad Club points as Business Class passengers and continue to enjoy access to business class lounges and priority at check-in and during boarding.

Air Astana Sales Director, Islam Sekerbelov commented: “We always appreciate and listen to our customers’ feedback. Thanks to their comments we can continually enhance and improve our service. The new Premium Economy Class is designed for passengers who value comfort and seek value for money too. They will still receive the service and privileges of our business class offering.”

Air Astana operates five Embraer E190-E2 aircraft which belong to the family of upgraded E-Jets, offering lower operating costs, emissions and noise levels.



## Robin Hayes Becomes the 79th Chair of the IATA Board of Governors

The IATA announced leadership changes approved by the 76th IATA Annual General Meeting.

Robin Hayes, CEO of JetBlue is now the Chair of the IATA Board of Governors (BoG), succeeding Carsten Spohr, Chair IATA BoG (2019-2020) and CEO of Lufthansa. Hayes will serve a term commencing immediately and ending at the conclusion of the Association's 78th Annual General Meeting to be held in 2022. Hayes will serve an extended term as Chair covering two AGMs due the disruption to governance cycles necessitated by the COVID-19 crisis.

"The expectations for IATA's leadership are high. Managing through the crisis is, of course, at the top of the agenda. We must safely re-open borders and build back the vital global connectivity that has been lost in this crisis. There is a great expectation for aviation's role in the global distribution of a vaccines when they are ready. Safely re-starting large parts of the industry after months of being grounded is a challenge



that will require the IATA to work with governments globally. And, in addition COVID-19 related work, we have a clear mandate to meet our 2050 goal to cut net aviation emissions to half 2005 levels; and to explore pathways to net zero globally. I look forward to driving these priorities forward with the support of Alexandre, Willie, the BoG and all our members," said Hayes.

Hayes was named president of JetBlue in 2014 and was appointed CEO in 2015, a position that also encompasses subsidiaries JetBlue Technology Ventures and JetBlue Travel Products. He joined JetBlue in 2008 as Executive Vice President and Chief Commercial Officer after a 19-year career with British Airways.

## Collins Aerospace Systems Signs a Collaboration Agreement with Boom Supersonic

Collins Aerospace Systems, a unit of Raytheon Technologies, has signed a collaboration agreement with Boom Supersonic, the aerospace company building the world's fastest airliner, to advance nacelle technology on Boom's forthcoming flagship supersonic airliner, Overture. Overture will be the world's fastest airliner and is designed and committed to industry-leading standards of speed, safety, and sustainability.

Collins Aerospace engineers will work in concert with Boom to develop inlet, nacelle, and exhaust system technologies that enable fuel-burn reduction and cutting-edge acoustics for cleaner and quieter supersonic flight. They will do this via lightweight aerostructures and variable nacelle geometry. Collins Aerospace has been providing innovative nacelle technology for more than 70 years, including development of the first commercial variable fan nozzle for high-bypass-ratio geared turbofan (GTF) engines.

The combined engineering team will be exploring the development of advanced acoustics and variable inlet and exhaust technologies required to minimize aircraft noise for passengers and airport communities while enhancing performance.

Boom's mission is to make the world dramatically more accessible by making supersonic travel mainstream. Overture is in its design phase with plans to finalize the configuration and begin building the first airliner while XB-1 is flying supersonic. Boom will roll out the first completed Overture aircraft in 2025, with entry into service planned for 2029.



## Iridium Partner Collins Aerospace Passes Development Milestone for Iridium Certus

Iridium Communications Inc. partner Collins Aerospace continues to make progress in bringing its new Iridium Certus aviation terminal to market. The company passed a major development milestone and is the first among Iridium Certus aviation partners to connect an aviation-grade antenna, in this case an Active Low-Gain Antenna (ALGA), to the Iridium constellation.

Collins Aerospace's Iridium Certus solution is designed to meet the connectivity needs of commercial, business and government aircraft. The service will enable a variety of capabilities for cockpit safety, graphical weather, electronic flight bags, enhanced aircraft reporting, and other operational aircraft services for airline and government customers. It will offer this through small form factor antennas currently in testing, and terminals that are ideal for operators of smaller aircraft requiring internet connectivity.

Collins Aerospace was announced as an Iridium service provider for the aviation industry in 2018, and continues to make progress in its solution to enable a faster, more reliable SATCOM experience. Enabled by Iridium's upgraded constellation, Iridium Certus is a multi-service communications platform that offers the highest speed L-band connectivity and only truly global mobile satellite service on the market.

"Collins Aerospace continues to play a critical role in bringing the next-generation L-band broadband solution to customers around the world," says Iridium Executive Vice President of Sales and Marketing, Bryan Hartin. "The progress of its Iridium Certus SATCOM solution is paving the way for safer and more connected skies.

## 3M and Safran Announce Partnership to Design Cleaner Aircraft Interiors

3M and Safran Cabin are bringing together their strengths and technologies in a partnership. Known for its multiplatform technologies and efforts in the fight against COVID-19, 3M will provide technologies to help design cleaner aircraft cabin interiors for 'Travel Safe' – in a joint initiative of Safran Interior companies to verifiably elevate the hygiene of aircraft interiors.

Safran will certify 3M technology that enhances cleaning and protection features of aircraft cabin equipment and provides the capability to mitigate or improve the removal of bacteria and viruses, including SARS-CoV-2.

"Clean interiors are an industry imperative, and we have with 3M an innovative partner and expert in cleaning, disinfection and protection, who can blend the latest in clean technology with the specialized plastics, decors, and composites used in aircraft interiors," said Norman Jordan, CEO of Safran Cabin.

The partnership will leverage the research capability of both companies to realize a shared vision for seamless, safe and stress-free travel. It's expected that these new aerospace materials will be available in 2021.



## FAI Receives ITIJ's Air Ambulance Company of the Year

The Air Ambulance Division of German Special Mission Operator FAI rent-a-jet AG has won the prestigious 2020 International Travel & Health Insurance Journal (ITIJ) Air Ambulance Company of the Year Award. The winners were revealed virtually at the ITIJ Awards ceremony on the 5th of November. The company overcame stiff competition from fellow finalists, Air Ambulance Worldwide and Jet Rescue. This marks the second award win for FAI having first won in 2012. The ITIJ awards, now in their 18th year, honors these companies that have made an outstanding contribution to the global travel and health insurance industry over the past year.

Accepting the award, Volker Lemke, head of FAI's Air Ambulance Division, said: "On behalf of the division, I am pleased and proud to have won this important award. The win is particularly sweet given the incredibly challenging and extraordinary year we have had to

meet demand during the pandemic. I would like to thank the entire team who have shown dedication, professionalism and incredible resilience particularly during the past nine months. Without them, our work would not be possible."

"Congratulations to the team at FAI for this well-deserved win," said Ian Cameron, ITIJ editor-in-chief. "Our judging panel commented that FAI demonstrated 'quality standards of the highest level' and put 'operational safety first, always guided by ethical principles, governing how they treat their colleagues, clients, and the patients entrusted to their care'."

Earlier this year, FAI rent-a-jet emerged from its busiest period in its 30-year history due to the coronavirus pandemic. During this time the division was operating at maximum capacity and worked hard to fulfill all the requests coming in 24/7 for repatriation and medevac flights utilizing its 10-strong fleet of air



ambulance jet aircraft, covering all corners of the globe.

Demand was particularly strong for FAI's EpiShuttle isolation pod patient transfer system which enables self-contained oxygen and air ventilation directly to the patient, isolated from the cabin's airflow. Since April, the division has been managing a very challenging and fluid situation with fluctuating demand coming mostly from COVID-19 patient transfers.

FAI is one of the world's largest air ambulance jet operators by revenue,

logging far above 10,000 hours per year flying air ambulance missions. The fleet comprises Bombardier Global Express, Challenger 604 and Learjet 60 is based at FAI's Headquarters at Albrecht Dürer International Airport in Nuremberg. It is supported by more than 200 full time staff plus 50 part-time physicians and paramedics.

The company specializes in air support in hostile areas for the world's largest NGO. It currently averages four intercontinental medical evacuations per day for its global client base.

# Kuwait Airways Takes Delivery of its first two A330neos

Kuwait Airways, the national airline of Kuwait, received its first two A330neos on 29 October 2020. These aircraft are the first of eight A330neos ordered by the airline. The carrier currently operates a fleet of 15 Airbus aircraft comprising seven A320ceos, three A320neos and five A330ceos.

This event also marks Airbus' first A330-800 delivery. The new generation widebody aircraft is the latest addition to Airbus' product line, highlighting the company's strategy to keep offering its airline customers unbeatable economics, increased operational efficiency and superior passenger comfort with proven latest technology platforms.

Thanks to its tailored mid-sized capacity and its excellent range versatility, the A330neo is considered the ideal aircraft to operate as part of the post-COVID-19 recovery.

Kuwait Airways Chairman, Captain Ali Mohammad Al-Dukhan stated: "Kuwait Airways takes pride in its continued relationship and cooperation with Airbus for the past four decades.

The delivery of the first two A330neos is yet another significant milestone for Kuwait Airways as we progress towards our goals and implementation of our fleet development strategy," said Al-Dukhan. "The introduction of the A330neos to our expanding fleet strengthens Kuwait Airways' position as a

prominent airline in both the regional and global aviation sector. As we are continuously reviewing our passenger requirements to provide excellent services, combined with comfort and safety during each flight, the arrival of the A330neos commences a new phase in the services we provide to our passengers on board, in addition to efficient and comfortable air transport services with Kuwait Airways", added Al-Dukhan.

Kuwait Airways' A330neo will comfortably accommodate 235 passengers, featuring 32 fully-flat beds in Business Class and 203 spacious seats in Economy Class while offering a large cargo hold capable of

accommodating generous passenger baggage allowances.

"The A330neo is the right aircraft for Kuwait Airways in these challenging times. This unique product is spot-on with Kuwait Airways' ambition to expand its network in the most efficient and versatile way," said Christian Scherer, Airbus Chief Commercial Officer. "With its Airspace best-in-class cabin comfort the aircraft will quickly become a passengers' favorite. Thanks to its high level of commonality and cost advantages, the A330neo will easily and efficiently integrate into Kuwait Airways' current fleet of A320s, A330s and its future fleet of A350s" he added.



# SunExpress Attains Authorized Economic Operator Status

SunExpress has become the second airline in Turkey to get an Authorized Economic Operator (AEO) Certificate after Turkish Airlines

As a result of this initiative launched in the last quarter of 2018, SunExpress, a joint venture of Turkish Airlines and Lufthansa, has obtained the Authorized Economic Operator (AEO) Certificate by fulfilling all the necessary obligations in September 2020.

SunExpress is the second company in the Turkish aviation industry to gain this status following Turkish Airlines, while in Antalya the airline has managed to become one of four companies operating in the logistics sector authorized with the respective certificate.

Authorized Economic Operator Status is an



internationally recognized valid status provided to reliable companies that fulfill customs obligations, have a regular and traceable registration system, are able to meet financial competence and safety standards and perform auto control. This status provides companies with many privileges and convenience in customs practices. Therefore, the Authorized Economic

Operator is one of the main elements of the international foreign trade structure.

The Authorized Economic Operator certificate enables SunExpress to take advantage of status privileges in the countries covered under the mutual recognition agreement as well as time and cost savings in import and export processes,

positive contribution to operational capabilities, competitiveness in international markets as well as a significant increase in brand value and reliability.

Currently, there are 19,001 companies in the European Union region and 11,605 companies in the United States that have qualified for the AEO certification.

## Turkish Cargo, From China to Brazil

Turkish Cargo, which provides services to 127 countries, carried COVID-19 vaccines 17 thousand kilometers away, from China to Brazil.

COVID-19 vaccines, loaded in 7 containers with special cooling systems, were transported from Beijing to Sao Paulo,

the largest city in South America, through Istanbul.

During the pandemic period, Turkish Cargo has carried medicine all over the world, and has achieved more than 50% in growth in drug shipments during this period.



© Turkish Cargo

# WMO and IATA Agree to Improve Aircraft Meteorological Reporting

The International Air Transport Association (IATA) and World Meteorological Organization have signed an agreement to increase and improve the automated reporting of meteorological data by commercial aircraft.

The new initiative, called the WMO and IATA Collaborative AMDAR Program (WICAP), aims to expand the existing WMO Aircraft Meteorological Data Relay (AMDAR) system to ensure coverage over data-sparse areas. It is expected to bring many additional and new partner airlines into the program, which is already supported by approximately 40 airlines and covers several thousand passenger and cargo aircraft.

“One of the many unfortunate aspects of the COVID-19 crisis has been the severe loss – of up to 90% – of aircraft-derived meteorological data as a result of the steep decline in airline operations and passenger flights since March 2020,” said WMO Secretary-General Professor Petteri Taalas.

“Meteorological services and other data providers



have tried to offset this loss, but there has been a measurable negative impact on the accuracy of weather forecasts as a result of AMDAR data reductions,” said Professor Taalas.

“Safety is aviation’s highest priority and ensuring airlines and other safety stakeholders have access to the most comprehensive and reliable weather forecast data is vital to achieving this,” said Alexandre de Juniac, IATA’s Director General and CEO.

“It is important that in rebuilding and re-establishing their operations, airlines are able to take advantage of all available cost and operational efficiencies. One such efficiency can be derived from the enhanced use of better-

quality weather forecasts and other meteorological information that results from the improved availability of AMDAR data,” said de Juniac.

The AMDAR observing system produces over 800,000 high-quality observations per day of air temperature and wind speed and direction, together with the required positional and temporal information, and with an increasing number of humidity and turbulence measurements being made.

This information is provided to meteorological agencies and computerized weather prediction systems. These in turn support the generation of forecast and weather service products for aviation.

The AMDAR system has made a positive contribution and improvement to weather forecasts. These are vital to airline and aviation efficiency and safety in an era when the industry is striving to make flying more sustainable and limit its contribution to climate change.

Under the new WICAP collaboration, the WMO community will take on the role of establishing a regionally based operational framework for reception and processing of the data. The IATA will be responsible for promoting airline participation in the program and help coordinate technical solutions for data relay, while protecting the airlines’ ownership of the data.



DEFENCE TURKEY MAGAZINE



# DEFENCE TURKEY

*15 YEARS*

*100<sup>TH</sup> ISSUE*

*THANK YOU VERY MUCH  
FOR YOUR VALUABLE CONTRIBUTIONS!*

# 5 STAR JOURNEYS START HERE

